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HENRY V. POOR, Editor.

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The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

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Saturday, November 12, 1853.

ENTERED according to Act of Congress, in the year 1853, by EDWIN F. JOHNSON, in the Clerk's Office of the District Court of Connecticut.

Railroad to the Pacific--Northern Route.

Its General Character, Relative Merits, etc.

By EDWIN F. JOHNSON, C. E.

(Continued from Page 709.)

Near to the Great Falls of the Missouri which are 87 feet perpendicular, are rapids and smaller falls extending through a distance of about twenty miles. These falls and rapids were examined carefully by Lewis and Clark and the descent at each noted. From their estimate it appears that the entire descent is 308 feet, which gives for the elevation of the line upon the plain above the Falls in round numbers 3,250 feet, nearly, above the level of the sea.

The length of the portage passing these obstructions to the navigation is 18 miles.

The Missouri river above the Falls is about 500 feet wide and maintains this width nearly to where it loses its name at the junction of its three large tributaries, the Gallatin, Madison, and Jefferson rivers, a distance of 230 miles from the Falls following the course of the river. The last named branch is the most westerly of the three. It is

also the largest and least rapid, and from it at a point in lat. $44\frac{1}{2}^{\circ}$ N. 500 miles nearly from the Falls (through all of which distance it is navigable with canoes,) there is a portage of only 38 miles in length, and over ground comparatively level for most of the distance, and no portion of it difficult, to the waters of the Salmon river branch of Lewis' fork of the Columbia. This was the route pursued by Lewis and Clark on their way to the Pacific.

After reaching the Salmon river and continuing some distance along it in a north-westerly direction, they then left it, and passed over nearly due north to Clarks branch of the Columbia, and along that stream as far as Travellers Rest creek, a tributary to it from the west. This latter stream they followed to near its source, westerly in the mountains, and thence into the valley of the Kooskooskie, a branch of Lewis' river, which they descended, and continued on to the mouth of the Columbia where they remained during the winter.

The next Spring they returned by the same route as far as Clarks river, at the mouth of Travellers Rest Creek. Here one division of the party, under Capt. Clark took the route up Clarks river and thence across by the sources of Wisdom river to Jefferson river, and down the latter to the head of the Missouri, at the Grand forks; thence up Gallatin river, which is navigable, to a point only 18 miles from the Yellow Stone, where there is a portage to the latter river over very feasible ground. Across this they passed, and proceeded thence down to the mouth of the Yellow Stone, a short distance below which they were joined by the party under Capt. Lewis.

This latter party, after separating from their companions at Travellers Rest creek, passed down Clarks river a few miles to a large branch coming in from the East. This branch they followed to one of its sources, from whence they crossed to the valley of Medicine river, and thence along that river to the Missouri, passing, before reaching the Medicine river, Dearborn river, which is also a branch of the Missouri.

The route proposed for the line of the railroad from the Missouri to the Columbia, leaves the Missouri at the head of the Falls and thence across by the path last described as followed by Capt. Lewis on his return. This will be termed

the "Lewis Pass" and as its character is of great importance in this enquiry no apology will be needed for giving here an extract from the journal itself, premising that the latitude of the camp near the mouth of Traveller's Rest creek, as ascertained by Capt. Lewis is $46^{\circ} 48' 28''$ N.

July 3, (1805).—"The nine men and five Indians who accompanied Capt. Lewis, proceeded in a direction due north down the west side of Clarks river. Half a mile from the camp we forded Traveller's Rest creek, and two and a half miles farther passed a western branch of the river, 1 mile beyond this was a small creek on the eastern side, and a mile lower down the entrance of the Eastern branch of the river. This stream is from 90 to 120 yards (270 to 360 feet) wide, and its waters which are discharged through two channels were more turbid than that of the main river. The latter is 150 yards (450 feet) in width, and waters an extensive level plain and prairie, the lower parts of which are ornamented with the long leafed pine and cottonwood, while the tops of the hills are covered with pine, birch, and fir. We proceeded two miles further to a place where the Indians advised us to cross." * * * *

"The Indians now pointed out to us a road at no great distance which they said would lead up the eastern branch of Clarks river to another river called Cokalahishkit, or the river of the road to the buffaloes, and thence to Medicine river and the Falls of the Missouri.

They added that not far from the dividing ridge of the waters of Clarks river and the Missouri the roads forked, and though both led to the Falls, the left hand road was the best. The road was so well beaten, they thought, that we could no longer mistake it, and having now shown us the way they were anxious to go in quest of their friends the Shalees." * * *

July 4.—Having taken leave of the Indians we mounted our horses and proceeded up the east branch of Clarks river through the level plain in which we were encamped. At the distance of five miles we had crossed a small creek fifteen yards wide and now entered the mountains. The river is here closely confined within the hills for two miles, when the bottom widens into an extensive prairie and the river is 110 yards wide. We went ten miles further over a high plain, succeeded by a low and level prairie to the entrance of the Cokalahishkit. This river empties itself from the northeast, is deep, rapid, and about sixty yards wide, with banks which, though not high, are sufficiently bold to prevent the water from overflowing. The East branch of Clarks river is ninety yards wide above the junction but below it spreads to one hundred. The waters of both are turbid. The Cokalahishkit is the clearer of the two. The

beds of both are composed of sand and gravel, but neither is navigable on account of the rapids and shoals which obstruct their currents.

Before the junction of these streams the country had been bare of trees, but as we turned up the west branch of the Cokalahishkit we found a woody country though the hills were high, and low grounds narrow and poor. At the distance of eight miles in a due east course we encamped in a bottom where there was abundance of excellent grass. * * * Near the place where we crossed Clarks river we saw at a distance some wild horses, which are said, indeed, to be very numerous on this river.

July 5.—Early in the morning we proceeded on 3½ miles in a direction N. 75° E., then inclining to the south crossed an extensive beautiful and well watered valley nearly twelve miles in length, at the extremity of which we halted for dinner. Here we obtained a great quantity of quash, and shot an antelope from a gang of females, who at this season herd together apart from the bucks. After dinner we followed the course of the river easterly for six miles to the mouth of a creek thirty-five yards wide, which we called Werners creek. It comes in from the north, and waters a high extensive prairie, the hills near which are low and supplied with the long leafed pine, larch, and some fir. The road then led N. 22° W. four miles, soon after which it again turned N. 73° E. for two and a half miles, over a handsome plain watered by Werners creek to the river, which we followed on in an eastern direction through a high prairie rendered very unequal by a vast number of little hillocks and sinkholes, and at three miles distance encamped near the entrance of a large creek twenty yards wide, to which we gave the name of Seamans creek. (31 miles in all this day.)

July 6.—At sunrise we continued our course eastward along the river.

At seven miles distance we passed the north fork of the Cokalahishkit, a deep and rapid stream forty-five yards wide, and like the main branch itself somewhat turbid, though the other streams of this country are clear. Seven miles further the river enters the mountains, and here end the extensive prairies on this side, though they widen in their course towards the southeast and form an Indian route to Dearborns river and thence to the Missouri. From the multitude of knobs irregularly scattered through the country, Capt. Lewis called it the *Prairie of Knobs*. It abounds in game, as we saw goats, deer, great numbers of burrowing squirrels, some curlews, bee-martins, woodpeckers, plovers, robins, doves, ravens, hawks, ducks, a variety of sparrows, and yesterday observed swans on Werners creek.

Among the plants we observed the southern wood and two other species of shrubs of which we preserved specimens. On entering the high grounds we followed the course of the river through the narrow bottoms, thickly timbered with pine and cotton wood intermixed and variegated with the bois rouge, now in bloom, the common small blue flag and pepper grass, and at the distance of three and a half miles reached the two forks of the river mentioned by the Indians. They are nearly equal in width and the road itself here forks and follows each of them. We followed that which led us in a direction N. 75° E. over a steep high hill, thence along a wide bottom to a thickly wooded side of a hill, where the low grounds are narrow, till we reached a large creek, eight miles from the forks and 25 from our last encampment.

July 7.—We proceeded through a beautiful plain on the north side of the river, which seemed here to abound in beaver. On the low grounds there was much timber, and the hills were covered chiefly with pitch pine, that of the long leafed kind having disappeared since we left the *Prairie of the Knobs*. At the distance of twelve miles we left the river, or rather the creek, and having for four miles crossed two ridges in a direction N. 15° East, again struck to the right, proceeding through a narrow bottom covered with low wil-

lows and grass, and abundantly supplied with both deer and beaver.

After travelling 7 miles we reached the foot of a ridge which we ascended in a direction N. 45° E. through a low gap of easy ascent from the westward, and on descending it were delighted at discovering that this was the dividing ridge between the waters of the Columbia and those of the Missouri. From this gap fort Mount's is about 20 miles in a north-east direction. * * * "We now wound through the hills and hollows of the mountains, passing several rivulets which ran to the right, and at the distance of 9 miles from the gap encamped, having made 32 miles. We procured some beaver and this morning saw tracks of buffalo." * * *

July 8.—"At three miles from our camp we reached a stream issuing from the mountains to the south-west (east)." * * * "We called it Dearborns river. Half a mile further we observed from a height the Shishequaw Mountain, a high insulated eminence of a conical form standing several miles in advance of the eastern range of the Rocky Mountains and then about 8 miles from us, and immediately on our road which was in a north-east direction; but as our object was to strike Medicine river and hunt down to its mouth, * * * we determined to leave the road and therefore proceeded due north (10 miles) through an open plain till we reached Shishequaw creek, a stream about twenty yards (60 feet) wide with a considerable quantity of timber on its low grounds.

Here we halted and dined, and now felt, by the luxury of our food, that we were approaching once more the plains of the Missouri so rich in game.

We saw a great number of deer, goats, and wolves, and some barking squirrels and for the first time caught a distant prospect of two buffalo. After dinner we followed the Shishequaw creek for 6½ miles to its entrance into Medicine river, and along the banks of this river for 8 miles when we encamped on a large island. The bottoms continued low, level, and extensive; the plains too were level, but the soil of neither was fertile, as it consisted of a light colored earth intermixed with a proportion of gravel; the grass on both was generally about nine inches high. Capt. Lewis here shot a large and remarkably white wolf. We had made 28 miles." * *

It rained the whole of the next day and they advanced but eight miles over extensive bottom lands tolerably well supplied with narrow leafed cotton wood. "The river is about 80 rods wide with banks which though low are seldom overflowed; the bed is composed of loose gravel and pebbles, the water clear and rapid, but not so much as to impede navigation. The bottoms are handsome, wide and level and supplied with a considerable quantity of narrow leafed cotton wood. During our short ride we killed two deer and two buffaloes and saw a number of wolves and antelopes.

July 10. We set out early, and proceeded through a country similar to that of yesterday with wide leafed cotton wood, occasionally along the borders of the bottoms, though for the most part the low grounds were without timber. In the plains were great quantities of two species of prickly pear, then in bloom. Gooseberries of the common red kind were in abundance, and just beginning to ripen. The river had now widened to 100 yards (300 feet) was deep, crowded with islands, and in many parts rapid. At the distance of 17 miles the timber disappeared totally from the bottoms. About this time the wind, which had before blown on our backs and put the elk on their guard, shifted round, and we shot three of them and a brown bear. * * * We saw vast numbers of buffalo, below us, which kept up a dreadful bellowing through the night. With all our exertions we were unable to advance more than 24 miles owing to the miry state of the ground, occasioned by the rain.

The next morning however, July 11, was fair and enlivened by multitudes of birds, which sung

delightfully in the clusters of cotton wood.—The hunters were sent down Medicine river in pursuit of elk, while Capt. Lewis crossed the high plain in a direction N. 75° E. to White Bear island (near the head of the Falls in the Missouri river in lat. 47° 9' N.) a distance of eight miles, and here they joined him.

They had seen some elk, but in this neighborhood the buffalo were in such numbers that on a moderate computation there could not have been less than 10,000 within a circuit of two miles. * * * Among the smaller game were the brown thrush, pigeons, doves, and a beautiful bird called the buffalo pecker."

From the main summit to the Missouri river at White Bear island the distance by the computation of Capt. Lewis on the route travelled by him, is eighty miles. It is assumed to be 70 miles as he informs us that he did not pursue the direct route easterly but maintained a northerly direction to Medicine river. The direct distance from the main summit to White Bear island is given at 28 miles, for Capt. Lewis states that from the summit or Gap, "Fort Mountain is about 20 miles in a N. E. direction," and when passing up the Missouri Fort Mountain is represented as being 8 miles from White Bear island.—It is possible the distance from the Gap to Fort Mountain may have been underrated, but it must be very wide indeed of the truth to make the summit more than 40 miles in a direct line from White Bear island. In calling it 70 miles a sufficiently liberal allowance is supposed to be made for any increase of distance necessary, to bring the gradients and expense within a reasonable limit.

From the description of the ground the descent in the 45 miles nearest to the Missouri river cannot be great. Ten feet per mile is believed to be a liberal estimate making the height of the line at the "Open plains" about 3,700 feet. That this is sufficiently high is apparent from the fact that the valley of Dearborns river at the place of crossing, is not, from the description, much below the level of the plains, and the valley itself cannot have a very great inclination as we are told by Lewis and Clark when ascending the Missouri, that the river had "every appearance of being navigable."

From the "open plain" to the main summit or *divortia aquarum* the distance is about twenty miles. The line in this distance crosses Dearborns river and several of its smaller tributaries and "winds through the hills and mountains". The ascent from the open plain is evidently mostly within the last ten miles, and there is nothing in the description to authorize a greater estimate to be put upon the main summit than about 1,300 feet above the plain making it in round numbers 5,000 feet only above the sea.

This estimate gives for the main summit above the Missouri at the mouth of Dearborns river about 1,700 feet. Serjeant Gass in his narrative, in describing the heights on the east side of Dearborns river says, that "some of the knobs or peaks of these mountains are 700 (perhaps some nearly 1200) feet high." The next range in which is the *Dalle* or *Canon* (*kenyon*) called the *Gate of the mountains* is still higher. Lewis and Clark remark in regard to it, that "the mountains are higher today than they were yesterday." The walls of this *Canon* they describe as nearly 1,200 feet high, evidently formed by a transverse break in the ridge or mountain by some great convulsion of nature, affording a narrow passage for the river, the water

being deep throughout and the length nearly six miles which indicates the width of the mountain at the base.

While the party were ascending the river, Capt. Clark traversed this portion of the valley on foot, and to save "many miles" of distance crossed this mountain by a "wide indian road," which in many places seemed to have been cut or dug down in the earth. It was near the close of the day when he arrived at the base of the mountain and the same evening he crossed over and encamped on its western side. This mountain like the others in this region has a direction N. W. and S. E. and being the first encountered west of Dearborns river, is evidently the same in which the main summit is situated. From what has been stated, it is not unreasonable to suppose that its general height near the place of crossing it with the line of the proposed road is not more than 2,500 to 3,000 feet above the Missouri river at the mouth of Dearborns river, and as the route passes through what is termed a "low gap", in giving 1,700 feet for the height of that gap above the same level, its elevation cannot be considered as underrated.

If further evidence is required to show that the ridge at the gap is not underestimated it is found in the distance made by Capt. Lewis the day he passed it, which was *thirty two miles*, being a greater distance than was made on any other day in passing from Clarks river to the Missouri.

That the elevation of the Missouri river at the head of the Falls is also not underestimated appears to be evident when compared with that of the Yellowstone. Lewis and Clark ascended the Missouri with canoes above the Falls a distance of 500 miles to the upper forks of the Jefferson branch.

At about half that distance, or 250 miles, they came to the Grand or main forks. There is nothing in their description to authorize the belief that the river in this latter distance falls more than about 300 feet, when compared with other streams of the same magnitude, under similar circumstances whose descent is known.

This will make the main forks about 3,550 feet above the sea. In the remaining distance to the upper forks of Jefferson river, 270 miles, the fall is greater but does not, it is supposed, much exceed two feet per mile, making the upper forks about 4,100 feet above the sea.

From the main forks Capt. Clark crossed to the Yellowstone. In describing the intermediate ground, he states: "It now appeared that the communication between the two rivers was short and easy. The distance from the head of the Missouri at its three forks to this place is 48 miles, the greater part of which is through a level plain: while from the forks of the eastern branch of Gallatin river, which is there navigable for small canoes, to this part of the Yellowstone is no more than 18 miles with an excellent road over a high dry country, the hills being of inconsiderable height and easily passable." In another place he describes the summit of the dividing ridge as about midway between the waters of the Gallatin and the Yellowstone.

This description would make the elevation of the Yellowstone about equal to that of the main forks of the Missouri, but calling it 400 feet less, or 3,100 feet, it gives for the descent of the

Yellowstone to its mouth 1,000 feet, the distance being 800 miles, or one and one-fourth of a foot per mile.

The Yellowstone is described as "large and navigable for pirogues and even batteaux, there being none of the moving sand bars which obstruct the navigation of the Missouri; while there is but one ledge of rocks, and this is not difficult to pass." The mean velocity of its current as estimated by Capt. Clark for the 800 miles is a little over three miles per hour. Capt. Wyeth makes it about four miles per hour below the mouth of the Bighorn, but even this shows that the descent is probably less than the amount named above, and hence that the estimated elevation of the Missouri above the Falls is probably rather above than below the truth.

Again, from the upper forks of the Jefferson river (the extreme limit of canoe navigation) which is estimated as above to be 4,100 feet above the sea, the distance across to the waters of Salmon river branch of the Columbia is 38 miles, thirty seven miles of which is in the valley of a branch of Jefferson river which has a moderate ascent. From the summit between these streams, Lewis and Clark "followed a descent much steeper than upon the eastern side and at the distance of *three quarters of a mile* reached a handsome bold creek of cold clear water running to the Westward." This proved to be one of the branches of Salmon river, and notwithstanding the steeper descent, the comparative shortness of the distance from the summit renders it probable that the elevation of this point above the sea is greater than that of Jefferson river at the other extremity of the portage. 300 feet is, under the circumstances, a low estimate for the difference; this gives for the elevation of the waters of Salmon river 4,400 feet.

This river connects with Lewis river about midway between the mouth of Malheur river and the junction of the former with the Columbia. The elevation of this latter point is 1,286 feet above the sea, and of the mouth of Malheur river according to Fremont 1,880 feet. The descent of Lewis river in this distance does not appear to be marked by any great inequalities, and giving to the mouth of Salmon river a mean elevation between the two points named, it is found to be about 1,600 feet, making the descent in that river from the place where it was approached by Lewis and Clark 2,800 feet.

This descent takes place probably in about 400 miles following the course of the stream, giving an uniform rate of seven feet per mile; a very great rate for so long a distance, through a rock bound valley, in a stream where salmon ascend the whole distance, these fish, being found by Lewis and Clark near the place where they first met the waters of Salmon river.

The inference from this is that the elevation of the Salmon river valley and of the upper forks of the Missouri are not probably underestimated, a conclusion which is confirmed by evidence derived from the Journal of the Rev. Sam. Parker, who passed, in 1835, from the Green river of the Colorado, in lat. 42° N. by the way of Pierre's Hole and Henry's fork of Lewis river, into the Salmon river valley and thence to the Columbia.

From this it appears that the Salmon river when first seen by Lewis and Clark, cannot prob-

ably be more elevated than Fort Hall on Lewis river, which Col. Fremont ascertained to be 4,500 feet.

The summit passed over by Capt. Clark on his return between Clark and Wisdom rivers, and which will be called *Clark's Pass*, has probably an elevation not differing very much from that between the Jefferson and the Salmon rivers.

From Clark's river across to the forks of Jefferson river the route lies mostly through open prairie and is described by Capt. Clark as "in fact a very excellent road and by cutting down a few trees it might be rendered a good route for wagons with the exception of about four miles over one of the mountains which would require some levelling."

The summit at the Salmon River Pass, is 170 miles south of the Lewis Pass, and is consequently that much nearer to the most elevated points of the group of mountains of which Fremont Peak is the highest. It is perhaps reasonable to infer from this circumstance, that it is somewhat higher than the Lewis Pass, but the difference between them may not be very great.

Lewis and Clark, as they approached the fork of Jefferson river, state that distant snow-capped mountains are seen from the east around to the south and west; and here it will be proper to state that they experienced no difficulties in traversing either of the three routes described between the waters of the Missouri and those of the Columbia, but between Clark river and Lewis river their trials were very great. The mountains here on their return were covered with snow, from two to eight feet deep for sixty miles, and destitute of game. Mr. Parker estimates their average height on the south side of the Kootenokette, at about six thousand feet, the peaks of some of them reaching nearly or quite to the limits of perpetual snow. The contrast between this frozen region and the ground throughout Lewis' Pass, which was traversed only one week later, the clover covering the plains, and the quamash and the bois rouge being in bloom, and the service berries being nearly ripe, facts derived in part from the journal of Serjeant Gass, and Capt. Clark, shows an elevation for the Pass lower, if anything, than is assumed in the above estimate.

If attention is directed to the map, it will be seen that the plateau or base, on which stand the Rocky mountains, proper, between the waters of the Missouri and Columbia, declines probably to the north between the latitudes of 44° and 47°. The Missouri and Clarks rivers between those parallels both flow in that direction until they reach the latitude of 47°, when the former bears to the east, and the latter to the west, indicating that in this latitude or near it is the line of greatest depression of the general surface, a hypothesis further confirmed by the fact that in this line are found the channels or valleys of prominent branches of both rivers, running in opposite directions, neither of which have much fall, since the waters of one (the Cokalahshkit) are "turbid" flowing mostly through low lands over a sandy and gravelly bottom, with banks "though not high never overflowed," and only not navigable because of "the rapids and shoals that obstruct its current," and the other (the Medicine river) in "many places deep and filled with islands," and "navigable," flowing through a level plain,

Other Passes through this portion of the Rocky mountains are known to exist. Father De Smet mentions three. That followed by Captain Lewis is doubtless one of the number. Another which he found in his way, from the Mission of St. Mary's to the Yellow Stone, pursues evidently a very direct course to the Great Forks of the Missouri, as the distance was accomplished in seven days. He says, "we encamped the first night, Aug. 18, 1846, at the foot of the Blackfoot (Cokalahishkit?) forks. Innumerable rivulets and several beautiful lakes contribute largely to this river.

Towards its head, to the northeast, there is an easy Pass for carts and wagons. The valley we ascended is watered by a beautiful stream, the Cart river. It was through this valley we wound our way in former days, with all our baggage to the spot where St. Mary's now stands. We crossed the mountains in the vicinity of the Arrowstone fork, by an easy pass, and descended a tributary of the Jefferson as far as its outlet, through rather a wild, broken and mountainous country, with here and there an extensive open plain, the ordinary resort of innumerable herds of buffalo. The seventh day found us encamped in the immense plain through which the forks of the Missouri diverge."

From the main west fork of Maria's river to Clarks river, there is said to be a very feasible route, which if found sufficiently favorable is more nearly in the direct course for the proposed road, probably, than any other. The valley of Maria's river is a plain mostly prairie, so free from obstructions that Capt. Lewis made a forced march along it (apprehending pursuit from the Indians,) of one hundred miles in 18 hours.

To the north of this are still other Passes, two of which are described by Gov. Simpson, through one of which he travelled, though not without considerable effort at the rate of twenty miles a day. This is in lat. $50\frac{1}{2}^{\circ}$ N. nearly. The other more to the south, he states from report to be "greatly superior." These lead from the sources of the main branch of the Columbia and the Kootanie to those of the south branch of the Saskatchewan.

To the north of all these in the vicinity of the high peaks of Mounts Brown and Hooker, is the Athabasca Portage, on the route traversed by the Express of the Hudson's Bay Company between Hudson's Bay and the waters of the Columbia.

This Pass is ascertained by measurement to be 7,324 feet above the sea.

The three passes last named are all north of the latitude of 49° , and are only alluded to for the purpose of illustrating the general character of this portion of the Rocky mountains. A portion which from carelessness on the part of our map makers in not availing themselves of the information within their reach is represented as an elevated, unbroken range of mountains, with its principal streams many of them omitted and inaccurately placed, a fault which unfortunately attaches as much to the map published by order of the U. S. Senate in 1850, as to any other, although that map is in other respects very correct.

The examination of the several Passes through the mountains between the Missouri and Columbia rivers, will now be concluded by adverting to the fact as evidence of their low elevation, that at the time of the visit of Lewis and Clark two nu-

merous tribes of Indians, the Shoshones and Tshupahs were found inhabiting the entire region in question; at one season subsisting upon the salmon taken from the Salmon river branch of the Columbia, and at another pursuing the bison, and the elk on the plains of the Upper Missouri, passing to and fro between the sources of those rivers, evidently without difficulty.

Again in the vegetation of the Passes as described by Lewis and Clark, there are no plants of an Alpine character, such as would be found, probably in that latitude, if the elevation was much greater than is assumed, notwithstanding the softening influence of the milder temperature which pervades the region on the Pacific, and which is undoubtedly felt to a certain distance within the precincts of the mountains, even if it does not extend entirely through them to their eastern base. The last would seem probable from the circumstance of the profusion of cacti above the Falls of the Missouri.

Sir John Richardson alludes to the similarity of the Flora of the Valleys of the Columbia and Missouri and Saskatchewan which he describes as "even greater than between the latter and the eastern parts of the United States and Canada," and which can only be satisfactorily explained by the absence of a mountain barrier sufficiently formidable to cause a difference in their organisms.

The character and numbers of the animals also which were met with in the Passes by Lewis and Clark, does not indicate so very low or severe a temperature in winter, or so very harsh or rigorous a climate as to render them impracticable for the purposes of a railroad, nor do they indicate any greater elevation than is assumed. Wild horses were seen at the points where Captain Lewis left Clarks river, and buffalo were observed near the summit, and it was one of the well beaten roads formed principally by those animals which Capt. Lewis followed across the mountains on his return. The rattlesnake was seen at Rattlesnake Cliff, near the upper forks of Jefferson river, at an elevation as high, probably, as the summit of Lewis Pass, an animal seldom found in the eastern states north of the latitude of 45° .

The extract given from the journal of Captain Lewis, is very satisfactory in respect to the character of the ground between the Falls of the Missouri and Clarks river, for the construction of a railroad.

The line throughout is situated in an open valley. The surface is very regular, and free from the obstacles usually met with in the passage of summits having any very considerable elevation, and evidently presents no extraordinary difficulties.

The distance, estimating from the Falls of the Missouri is about 180 miles. The line is well supplied with timber, and the maximum gradient will not, it is believed, exceed fifty or sixty feet per mile, and that for a comparatively short distance, near to the main summit.

In proceeding westward from the summit of Lewis' Pass, the first measurements met with on the route of the proposed railroad, are those made at Fort Colville on the Columbia, a short distance below the mouth of Clarks river.

The elevation of this place above the sea is given by Commander Wilkes at 2,260 feet. In another place as deduced from the temperature of

boiling water, it is given at 2049 feet. Assuming 2100 feet as the elevation of the line at the Chaudiere Falls ten miles below, the descent to it from the summit of Lewis Pass is 2900 feet. 2200 feet of this amount is assumed to be embraced in the distance to Clarks river, giving for the inclination of this portion of the line of the road an average of twenty-two feet per mile, the distance being 90 miles which is believed to be as great an inclination of the valleys of the Cokalahishkit and east branch of Clarks river, as is demanded from the description of them by Capt. Lewis. The remaining seven hundred feet is the assumed descent of the Clarks river valley to the Columbia near Fort Colville, a distance as estimated by the route of the proposed road of 260 miles. This, after making a liberal allowance for the increase in distance by the channel of the river, gives for the average inclination of the river, including the "cascades and falls" which extend thirty miles from its mouth, nearly two feet per mile.

Although the mean rate of descent of Clarks river is thus found to be only from one fourth to one-third that of the Salmon river, yet the salmon are not found in it for the reason already stated, that they cannot surmount the Falls near the junction with the Columbia.

The fact of the much greater elevation of the mouth of Clark's river as compared with that of the Salmon river, is evidence of the probable less inclination of the valley of the former.

Bradford, the author of a valuable atlas and statistics of the United States, says that "Clarks river is navigable in the upper part of its course down which boats may descend to within sixty miles of the Columbia, when it becomes so much broken as not to be navigable." Father DeSmet ascended it from St. Ignatius in a bark canoe 250 miles in 16 days, in 1845, to the Mission Station of St. Mary's and descended the same distance in four days. St. Ignatius is about midway between Lake Kalispel and the mouth of the river.

Gov. Simpson states that he left Lake Kulspeim (Kalispel) in the morning, and thence ran down the river until eight in the evening, making probably a distance of about fifty miles, in which but one portage was necessary. From this point his party travelled by land to Fort Colville, a distance it is supposed of sixty or seventy miles, the last fifty miles of which was over a prairie plain across which they moved with great speed.

From this account of the character of Clarks river, it is apparent that a very considerable portion of it is navigable, so much as to make it probable that the estimated descent of 900 feet along its valley to the Columbia is rather above than below the truth, seeming to confirm the conclusion arrived at from other sources, that the elevation of the summit in the Lewis Pass cannot very much exceed the estimated amount of 5000 feet above the level of the sea.

From Fort Colville it is proposed, as already intimated, to carry the line of the road down on the south side of the Columbia river to the Chaudiere Falls or to Thompsons rapids a short distance below, where a bridge can conveniently be constructed without interfering with the navigation of the river. From thence it is to be continued along the valley of the river on the north side to

Fort Okanagan or to some suitable point on the Okanagan river, a distance estimated at ninety miles, but which, following the course of the river, is much greater.

The river in this distance is navigable excepting the Chaudiere Falls and Thompsons rapids. It has a strong current and when swollen boats descend very rapidly, making easily, with but little labor, over 100 miles per day. The descent of the Chaudiere Falls and Thompsons rapids is given by Thornton at 50 feet, the perpendicular fall amounting to 15 or 16 feet. There is an island at the first fall, and at the foot of the fall the river is 2330 feet wide. At Okanagan it is 1600 feet wide, and its elevation above the sea, according to Wilks, is 2000 feet.

In respect to the character of the surface from the eastern branch of Clarks river to Okanagan, there is little doubt of its being generally favorable. If the portion of the valley of Clarks river from the upper forks to the eastern branch, as described by Lewis and Clark, is any indication of the character of the valley below, it certainly does not present any extraordinary obstacles to the construction of a railroad. The portion alluded to embraces a distance of sixty miles and is a beautiful valley 10 to 15 miles in width, through which meanders Clarks river increasing from 100 to 300 feet in width; its lower portion flowing over a gravelly bed, with low banks and with a current so equable as to be navigable. That the valley of Clarks river below does maintain a character not very dissimilar to this is in accordance with the statements of Father De Smet, and the best information to be had in regard to it.

If the Columbia is crossed at the Chaudiere Falls the line will probably leave Clarks river at some point below the Kalispel lake, and cross the wide prairie which lies between that river and the Columbia.

The banks of the Columbia between the Falls and Okanagan are described by Gov. Simpson as "monotonous" and "sandy with rocky ridges." The course of the river is very indirect and the line may occupy ground of a different character from that which is exhibited in the vicinity of the river, either more or less favorable, but in neither case will probably require any extraordinary expense, or the adoption of any gradient exceeding about thirty feet in the mile, and the same remark will apply, also, to the portion in the valley of Clarks river. This latter portion is abundantly supplied with timber, and although the banks of the Columbia are destitute, it can easily be obtained by means of the navigation afforded by that river and its tributaries. Timber also of the very best quality, and in the greatest abundance, is found in the remaining portion of the line to the Pacific.

Between Fort Okanagan and the Pacific, or the waters connected with the straits of Juan De Fuca, the direct distance is not more than one hundred miles. Intervening is the Cascade or Presidents range of mountains; a high range extending as already described parallel with the coast from the southern limit of Oregon to the northern limit of Washington, and having several lofty conical peaks, one of which, Mt. Baker, is situated near the latitude of 49° N., and another, Mt. Ranier, in lat. 46½° N. nearly, the latter being a little to the south of the southern extremity of Puget Sound.

Commander Wilkes of the American exploring expedition when at Nisqually, dispatched a party under Lieut. Johnson with instructions to explore the country across to the Columbia river.

This party crossed the mountains north of Mt. Ranier and thence continued on in a north-easterly direction to Fort Okanagan.

Mt. Ranier was ascertained by triangulation to be 12,330 feet above the sea, while the greatest elevation attained by Lieut. Johnson in crossing the Range was found by barometrical measurement May 27th, 1841, to be 5,092 feet, from whence Mt. Ranier bore S. S. W.

The snow is described as ten feet in depth at the deepest point on the summit, and extending altogether eight miles, the summit being five miles across. On the 4th of June Lieut. Johnson broke his barometer, his last measurement being on the eastern side of the range, near the snow line at an elevation of 5,203 feet.

He gives a view of the appearance of Mt. Ranier with a portion of the Range on each side, as seen from an elevated point after passing the Range, a correct copy of which is annexed.



the adoption of what may be considered high gradients.—It is however limited in extent, and being near the terminus is favorably situated for the economical use of auxiliary power. The entire distance on the route as described from Chicago to the Pacific is 1,960 miles, and from the west end of Lake Superior 1,600 miles. These distances are 12 per cent greater than the direct distance between the points named, a percentage which is believed to be ample to cover the necessary deviations from a direct course.

The remarks above are predicated upon the supposition that no lower summit can be obtained than is assumed of 4,000 feet. The sketch presented affords encouragement of a still lower summit even upon or near the direct route. This in addition to the fact in which all the authorities concur, that the lat. of 48° N. is the limit or boundary between the trap and granite formations, indicate the possibility of a favorable change in the elevation of the range at that point. Near this line also, are the valleys of the Barriere and Tuxpam rivers, the former a tributary of the Columbia and the latter discharging into the Pacific, circumstances favorable and encouraging in respect to finding a lower pass for the road.

Again it appears from the surveys made by the exploring expedition that the latitude of 49° N. (the international boundary) is only five miles south of the mouth of Frasers river, where it meets the Pacific.

Fraser's river, like the Columbia finds its way to the sea through an opening in the Cascade Range and from its nearness to the line of 49°, there is reason to infer that the mountain range may be in a good measure avoided and still keep the line within the limits of the United States.

In respect to the selection of a point for the ter-

This view when considered in connection with the measurements described above, authorize the conclusion that there may be passes in this range, at no great distance even from Mt. Ranier, which do not exceed about 4,000 feet in elevation, or may be reduced to that amount at no very great expense.

A summit of this height will give 2,000 feet ascent from Fort Okanagan, which, if the line is carried directly towards the mountains, must be overcome in about 50 miles, at a maximum grade of probably 60 feet per mile, or, if laid obliquely so as to increase the distance, may probably be reduced to 50 feet per mile.

On the West side of the mountains, the descent to the Pacific, if made in a direct line of 50 miles in length, gives an average of 80 feet per mile, and a maximum probably of 100 feet per mile. If it amounts to 110 feet per mile, in any place it will then be less than the maximum on one of the principal railroads of the United States, the Baltimore and Ohio. This is evidently the only portion of the entire line from Lake Michigan to the Pacific requiring

minus of the proposed road a few words only will be necessary.

That point which possesses the requisite facilities in respect to harbor accommodations, on a large scale and in the highest degree, with ground the most suitable in elevation and extent for the site of a city of the first magnitude, with a country in the vicinity the most fertile, intersected by streams which afford abundance of water and of water power, and which withal is nearest to the entrance from the ocean by the straits of Juan De Fuca, is the best. This last consideration, that of a convenient communication with the sea is important to enable vessels, particularly coasters, and others running between the ports on the Pacific south, and those situated to the North and in Eastern Asia to enter and receive and discharge freight and passengers with the least possible loss of time and with the least expense.

Puget Sound, therefore, it will be seen is too far south for this purpose, and the proper point must be sought for on the eastern shore of Admiralty Inlet, near its northern extremity, or between this latter point and the international boundary, in what is termed the Archipelago of Arro.

ESTIMATE OF COST.

The portion of the line embraced in the States of Illinois and Wisconsin 70 miles in one and 290 miles in the other, being in a course of construction will not be included in this estimate.

This portion completed for a single track and equipped ready for use will probably cost not far from ten millions of dollars.

The length of the remaining portion from the west line of Wisconsin to the Pacific as estimated is 1,600 miles.

The cost of this for a single track complete, with the requisite turn-outs, the iron rails weighing

100 lbs. per yard, with all the necessary buildings and equipments is estimated as follows.

From the Wisconsin line to Red River the point of divergence of the branch to Lake Superior, 220 miles at \$40,000..... \$8,800,000

From Red River to the Great Falls of the Missouri, over the Missouri plains the surface being very favorable and distance 720 miles at \$45,000..... 32,400,000

From the Great Falls of the Missouri to Okanagan river, over ground more difficult of construction and access, 530 miles at \$60,000..... 31,800,000

From Okanagan to the Pacific including the passage of the Cascade mountains, 120 miles at \$70,000... 8,400,000

\$81,400,000

Add cost of branch to Lake Superior, 220 miles at \$40,000..... 8,800,000

\$90,200,000

Contingencies add..... 9,800,000

Total for 1820 miles..... \$100,000,000
Equal to \$55,000 per mile average.

The branch to Lake Superior is supposed to diverge from the main line at the Red River; thence across the *Hauteurs des terres* to the Mississippi at the mouth of Crow-wing river; thence in the vicinity of the Mississippi river to where it bends to the north; thence passing near Sandy Lake to its terminus at the west end of Lake Superior, where its elevation above the sea is supposed to be about 630 feet.

So favorable is the surface of the country generally along the proposed Northern route to the Pacific, that a road of the same character if located east of the Mississippi could be built and equipped complete at a cost not exceeding \$40,000 per mile. The addition to this amount of upwards of thirty per cent. is believed to be sufficient to cover the extra cost of transportation of materials and provisions and the other disadvantages incident to the construction of the road through a country the most of which is in a state of nature, having no other facilities of intercommunication than are presented by the navigable waters of the Missouri and Columbia; facilities which are indeed of very great importance, and which will contribute largely to diminish the cost of the road on the route in question.

The actual cost of the road will depend very much upon the time occupied in its construction. The revenue to be derived from it will be limited until the entire line is completed. It will be an object therefore to accomplish it in the shortest time possible consistent with a due regard to its cost. If immediately commenced and prosecuted with abundant means, it is not probable that it can be accomplished in less than from ten to twelve years, not including delays caused by negotiations with the Indian tribes. During this period if we may judge from the past, the increase in the population of the United States will not be less than ten millions, a large portion of which increase will undoubtedly be found located on and near the line of the proposed road. So that by the time it is completed it will have a large way business which will thenceforward be constantly augmenting and form a very prominent item in the revenue of the road.

To be continued.

Nashville and Danville Railroad.

The construction of this road will complete an important link in the great north-west and south-east line, connecting Cincinnati with Charleston and Savannah.

A road is now in process of construction from Covington, opposite Cincinnati, to Lexington, and will be ready for the cars early in the coming year. The road from Lexington to Danville, Ky., is under contract and partly graded.

From Danville to Nashville, about 170 miles, it is estimated that the Nashville and Danville road can be built at a cost of \$28,000 per mile. South of Nashville, the Nashville and Chattanooga, Georgia, and other roads form continuous connections with Charleston and Savannah.

Independent of securing a large portion of the trade of the interior of Kentucky without competition, this road will connect at Lexington with the Maysville and Lexington, Maysville and Big Sandy Railroads, and the Virginia and Wheeling and Baltimore roads.

Several subscriptions have already been made by several of the counties along the line of the road, and by efforts making, a large addition will be made to the individual subscriptions of stock to the company. There will be a large accession to the stock by the counties that have not yet made subscriptions. The means for the construction of the road, consist of the stock heretofore subscribed as follows:

Subscription of stock in Barren Co....	\$130,000
" " " Green Co....	100,000
" " " Taylor Co....	100,000
Proposed subscription in Marion Co....	200,000
" " " Allen Co....	100,000
" " " Boyle Co....	100,000
Addition Individual subscriptions in	
Greene Co.....	50,000
" " " Taylor Co....	50,000
" " " Barren Co....	50,000
Subscription by Cincinnati.....	500,000

\$1,630,000

Add to this stock subscriptions by contractors..... 750,000

Amount stock north State line.....	\$2,430,000
Say to be raised by Tennessee side..	500,000
Further stock to be subscribed on	
Tennessee part of line.....	200,000

3,130,000

Securities of the company..... 1,630,000

4,760,000

Cost of the road, 28,000 per mile.... 4,760,000

Evansville, Indianapolis and Cleveland Straight Line Railroad.

The Directors of this company met at Indianapolis on the 11th ult., when the stock books were examined and their contents summed up.

The amount of reliable stock subscribed and pledged has already reached \$1,800,000, part of which comes from other corporations interested in the construction of the road.

Two new Directors were elected to fill vacancies Judge Hardin, of Morgan, and Wm. S. Turner, Esq., of Daviess. Mr. Ball resigned his position as Chief Engineer of the road, in consequence of other and prior engagements claiming too much of his time to be able to devote the necessary attention to the Straight Line. Henry C. Moore was elected Chief Engineer of the company.

The letting of the road from Evansville to the

crossing of the Ohio and Mississippi road will take place on the first Tuesday in December.

Portland Locomotive Works.

We take pleasure in transferring to our columns from the "State of Maine" the following list of the Locomotives turned out by the above establishment since the commencement of its operations. These engines are now widely known and approved of throughout the country, and the Portland Company are well prepared to complete extensive orders on the best terms. Such roads as supply themselves with motive power from these works will have the guarantee of good workmanship and prompt delivery.

PORTLAND LOCOMOTIVES.

The Portland Company has been one of the most fortunate and successful business operations of the city.

Mr. Robert Stephenson, the distinguished engineer, when in Portland, visited these works, examined fully their style of engines, and said "that this company turned out better work than any of the shops in Boston," which shops he had just visited.

The engines of the Portland company have maintained the very highest reputation, and the company have in this way secured an amount of work in every department of labor, that has made their operations profitable, from the start. In addition to a regular dividend of six per cent. per annum, they made a special dividend of 25 per cent. in July last. The works were started in 1818. In addition to Locomotive engines they have turned out Steamboat and Stationary engines, and a vast variety of other machinery. Of the locomotives, they built in

1818.....	5
1849.....	8
1850.....	5
1851.....	10
1852.....	11
1853.....	23

These locomotives have gone to the following purchasers:

Atlantic and St. Lawrence Railroad.....	24
St. Lawrence and Atlantic Railroad.....	14
Mad River and Lake Erie Railroad (Ohio)....	6
Covington and Lexington Railroad, Ky.....	6
Panama Railroad (Central America).....	3
Androscoggin and Kennebec Railroad.....	3
Portland, Saco and Portsmouth Railroad....	2
John M. Wood.....	2
Rutland and Washington Railroad.....	1
York and Cumberland Railroad.....	1
Wood, Black and Co.....	1
Ontario, Simcoe and Huron Railroad.....	1
Lexington and Danville Railroad.....	1

Another curious fact appears in connection with these Locomotive Engines, illustrating the war of the gauges.

There are 44 on the gauge of.....	5	6
" 8 " ".....	5	
" 6 " ".....	4	10
" 5 " ".....	4	8 1/2

The gauge of Canada, and of Maine east of Portland, is five feet six inches. So of the lower Provinces.

The same gauge prevails east of the Mississippi.

South of the Ohio River, down to the Gulf of Mexico, the gauge is 5 feet. So on the Panama railroad.

In Ohio and New Jersey the gauge is four feet ten inches.

From Portland to Buxton, and so on south to New York, the gauge is four feet eight and a half inches.

The Erie railroad has a gauge of 6 feet. The Portland Company has on hand patterns for all the different widths, except the six feet gauge.

LIST OF LOCOMOTIVE ENGINES BUILT BY THE PORTLAND COMPANY.

No.	Name.	To what Railroad.	Weight Diam. Length			No. and size of drivers.	Gauge.
			in	of	of		
1	Augusta,	Portland, Saco and Portsmouth.	23	14	20	2 set of 5 ft. driv'rs.	4 ft 8 1/2 in.
2	Montreal,	Atlantic & St. Lawrence.	25	15	22	" " " "	5 6
3	A. N. Morrin,	St. Lawrence & Atlantic.	25	15	22	" " " "	" " "
4	Portland,	Portland, Saco & Portsmouth.	23	14	20	" " " "	4 8 1-2
5	Machigoune,	Atlantic & St. Lawrence.	25	15	22	" " " "	5 6
6	Oxford,	" " " "	25	15	22	" " " "	" " "
7	Ticonic,	Androscoggin & Kennebec.	25	15	22	" " " "	" " "
8	Wm. P. Preble	Atlantic & St. Lawrence.	24	14	20	" " " "	" " "
9	Portland,	Mad River & Lake Erie.	23	13	20	" " " "	4 10
10	Oregon	" " " "	23	13	20	" " " "	" " "
11	T. Boutell,	Androscoggin & Kennebec.	24	14	20	" " " "	5 6
12	Franklin,	" " " "	24	14	20	" " " "	" " "
13	Waterville,	Atlantic & St. Lawrence.	25	15	20	" " " "	5 1/2
14	Coos,	" " " "	25	15	20	" " " "	" " "
15	Montreal,	St. Lawrence & Atlantic.	25	15	20	" " " "	" " "
16	Gen. C. Clark,	Rutland & Washington.	23	15	20	" " " "	4 8 1-2
17	Sherbrooke,	St. Lawrence & Atlantic.	25	16	22	" " " "	5 6
18	Jenny Lind,	Wood, Black & Co.	25	15	20	" " " "	" " "
19	Felton,	Atlantic & St. Lawrence.	25	15	20	" " " "	5 " "
20	Railway King	" " " "	27	17	22	" " " "	" " "
21	Richland	Mad River & Lake Erie.	20	13	24	" " " "	4 10
22	West Liberty	" " " "	20	14	24	" " " "	" " "
23	Sandusky	" " " "	20	14	22	3 " "	" " "
24	Huntsville,	" " " "	20	14	22	" " " "	" " "
25	St. Lawrence,	St. Lawrence & Atlantic.	25	15	20	" " " "	5 1/2
26	Richelieu,	" " " "	25	16	22	" " " "	" " "
27	Yamassee,	" " " "	25	15	22	" " " "	5 " "
28	Casco,	Atlantic & St. Lawrence.	25	14	20	" " " "	" " "
29	Forest City,	" " " "	25	15	20	" " " "	5 1/2
30	Danville,	" " " "	23	13	20	" " " "	5 " "
31	Consuelo,	John M. Wood.	23	13	20	" " " "	" " "
32	Falmouth,	Atlantic & St. Lawrence.	25	14	22	" " " "	4 1/2
33	Lady Elgin,	Ontario, Simcoe & Lake Huron.	24	14	20	" " " "	5 1/2
34	Queen,	St. Lawrence & Atlantic.	26	16	22	" " " "	5 1/2
35	Massawipi,	" " " "	27	16	24	" " " "	4 1/2
36	Dan. Webster,	Atlantic & St. Lawrence.	25	15	20	" " " "	5 " "
37	Nueva Grenada,	Panama Railroad.	23	13	20	" " " "	4 1/2
38	Panama,	" " " "	23	13	20	" " " "	" " "
39	Bogota,	" " " "	23	13	20	" " " "	" " "
40	Cumberland,	Atlantic & St. Lawrence.	27	16	22	" " " "	5 " "
41	Norway,	" " " "	27	16	22	" " " "	" " "
42	Nulhegan,	" " " "	24	14	22	" " " "	5 1/2
43	Paris,	" " " "	25	15	22	" " " "	6 " "
44	Gloucester,	" " " "	25	15	22	" " " "	5 1/2
45	Yarmouth,	" " " "	25	15	22	" " " "	5 " "
46	Amonsoic,	" " " "	25	15	22	" " " "	" " "
47	Westbrook,	York & Cumberland.	20	13	20	" " " "	4 8 1-2
48	Vermont,	Atlantic & St. Lawrence.	27	16	22	" " " "	5 6
49	"	" " " "	24	14	22	" " " "	6 " "
50	Oxford,	" " " "	25	15	22	" " " "	5 " "
51	Bourbon,	Covington & Lexington.	23	15	20	" " " "	5 " "
52	"	" " " "	23	15	20	" " " "	" " "
53	Falmouth	" " " "	23	14	20	" " " "	" " "
54	Harrison,	" " " "	23	14	20	" " " "	" " "
55	"	Lexington & Danville.	26	16	20	" " " "	5 1/2
56	"	Atlantic & St. Lawrence.	23	15	22	" " " "	6 " "
57	"	St. Lawrence & Atlantic.	23	14	20	" " " "	5 1/2
58	"	" " " "	23	14	20	" " " "	" " "
59	"	" " " "	24	14	22	" " " "	6 " "
60	"	" " " "	24	14	22	" " " "	" " "
61	"	" " " "	23	15	25	" " " "	" " "
62	"	" " " "	25	15	22	" " " "	" " "
63	John M. Wood.	" " " "	24	14	22	" " " "	5 1/2

Maine.

Kennebec and Portland Railroad.—The Directors of the Kennebec and Portland Railroad have entered into a contract with the Somerset and Kennebec railroad company for a lease by which that road, when completed and ready for using, shall be run and operated by the Portland and Kennebec corporation for twenty years, the latter having all the receipts, keeping the road in repair and paying to the Somerset and Kennebec corporation six per cent. annually on the cost of the road, provided such cost shall not exceed \$700,000, and, at the end of twenty years, one half of what the net earnings of that road shall be found to have exceeded the six per cent. annual payment, repairs, &c. That road is to be completed next fall.

Lebanon Valley Railroad.

We learn from the Philadelphia News that two millions of dollars have been raised towards the construction of this work, one million by subscriptions to stock, and one million by loan. The making of the road is now a fixed fact. A corps of Engineers, under the direction of Richard B. Osborne, Esq., are now surveying the route, preparatory to letting out contracts, and, as we last week stated, the eastern division (between Reading and Lebanon) is expected to be put under contract before the first of January next. The contractors will be required to commence operations forthwith, so that in about two years from this time, we shall probably be able to make a trip to Lebanon by rail.

Lexington and Big Sandy R. R.

The work on this line was let about the 1st of Sept. to Messrs. De Graff, Foster & Co., well known contractors, on terms very favorable to the interests of the company; payable one-half in cash, one-quarter in the bonds of the company, and the remaining fourth, in stock in the road. The work is to be commenced immediately and completed within three years ready for the rolling stock; the company to furnish the ties and iron. It is expected that portions of the line from Lexington, east, and from Catlettsburg, on the Big Sandy, west, will be opened within the next eighteen months.

We learn from Mr. J. B. Westbrook, Chief Engineer of the work, that the company have propositions from the iron-workers on the route, to furnish rails for the whole line, from the ores in the vicinity. It is well known that both coal and iron are found in large quantities along the line of this road and the completion of the enterprise will accomplish much toward making them available to the people of Kentucky. Under these circumstances it is reasonable to suppose that the Lexington and Big Sandy Company can secure their iron, for the whole route, on more favorable terms, at home, than in a foreign market.

Alabama and Tennessee Railroad

The Uniontown Independent has the following information in regard to this road.

We learn that the grading of the road from Selma to Uniontown is all under contract, and will be completed at an early day. The first ten miles, commencing at Selma, was taken last Fall by Col. Goldsby, and is now ready for the cross ties and iron.

We are not informed whether a contract has been made for a bridge across the Cahaba river or not; a portion of the materials cannot well be gotten to the spot until the track is laid that far. We have no doubt, Mr. Troost, the Chief Engineer, who has this part of the work in charge, will have it ready in time for the next crop.

The grading of sections 11, 12, and 13, being the first three miles this side of Cahaba river, is under the charge of Messrs. Waddill & Co. They have a large force at work, and will complete it early in February next. Mr. L. W. Mc Millan has the next two miles, and is now at work with a force sufficient to complete it whenever it is needed. The next eight miles has been let to Col. Goldsby, whose name in connection with improvements is a sufficient guarantee that it will be ready in due time. Mr. P. H. Pitts, also has a large portion of it graded, which will be ready at any time the Directors require it. The next contract is under the supervision of Col. Davidson—this includes the five miles next to Union town—the greater part of which is finished. He has a large force actively employed, and, with his energy, we may look for an early completion of his contract.

The Bibb County Steam Mills Company will, we understand, furnish cross-ties for the first ten miles—they having subscribed ten thousand dollars, payable in Lumber. These Mills are located in Bibb County, about twenty miles above Selma, on the Alabama and Tennessee River Railroad, in a region that abounds in the finest timber.

Messrs. Moore & Brown, William A. Jones, and Mr. McKellar, have each contracts for cross-ties, on this side of the river, and have a large number for delivery.

The right of way, with but few exceptions, has been given to the Company.—Major Price, the energetic President, is now at the North, and, we learn, has purchased iron for the road—how much or on what terms, we have not been fully informed.—We hope to be able to give something more definite in regard to this, in our next. Thus, it

may seem, from the zeal of our Board of Directors, the cheering news from the western end of the road in Mississippi, and the Mobile and Ohio road, that we may soon expect to travel East or West by railroad.

American Railroad Journal.

Saturday, November 12, 1853.

Pacific Railroad.

Certain parties who obtained from the Legislature of this State, at the last session, acts of incorporation for the purpose of building a railroad to the Pacific, organized on the 2nd instant by the choice of the following gentlemen as directors, viz: Levi S. Chatfield, Sanford E. Church, Orville Clark, Caleb S. Woodhull, of New York; Cyrus Moore, Maine; George Ashmun, Mass.; T. Butler King, Ga.; Alfred Gilmore, Penn.; Francis M. Dimon, Rhode Island; Robert J. Walker, Washington; Elon Farnsworth, Mich.; William Noyes, Penn.; Jephtha Fowles, Tenn.; Thomas J. Green, California; Anson Jones, Levi Jones, W. B. D. Ward, Texas; James H. Lucas, Mo.; Isaac E. Holmes, South Carolina; Nathaniel T. Green, North Carolina; Philip T. Thomas, Maryland; H. B. Spelman, Samuel Waggoner, Ohio, G. W. Underhill, Ark.; E. T. Bridge, New Jersey.

It will require very different timber from this to build the Pacific road. There is not what may be termed a first class name, in the whole list; nor a person calculated to command the confidence of that class of men who are to build the road. There are on the other hand such a sparkling of politicians and speculators as to throw doubt over the real intentions of the parties, and lead to the belief, that they have a very different object from the one set forth. At least one half of the directors must step aside, before they can secure the confidence of the public, or the cooperation of capitalists. Such being the fact, it may be well to say so at once. Under the present lead, the company will simply make themselves ridiculous, and will be equally powerless before the country, and Congress. No company can succeed in this work without the efficient aid and support of both. The more this company parade themselves before the public, the sooner will they be laid on the shelf. They do not even constitute a respectable vanguard of the army that is to follow to fight the battle. The latter does not want their services, will not follow their lead, and will be indifferent, even, whether they are found in the ranks; so that the Pacific Company may make themselves as happy as possible over the subject of a railroad to their road, for they will have precious little work to do.

Since the above was written we learn that the company has been organized by the choice of Levi S. Chatfield, a distinguished politician of this State, as President, and Mr. Leland of the Metropolitan Hotel, (*par nobile fratrum*), Secretary. We also understand that Wm. J. McAlpine, Esq., of the Erie road has been appointed Chief Engineer, and Hon. A. C. Flagg, Comptroller of the City, Treasurer. If they accept, we must say we think they will find themselves in the wrong box.

It is also stated that some \$50,000,000 have been subscribed to the stock of the company—by "men in buckram suits," we presume.

Railway Share List.

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares
Atlantic and St. Lawrence... Maine.	160	1,538,100	2,973,700	5,150,278	254,748	113,520	none	82
Androscoggin and Kennebec... "	55	809,378	1,016,500	2,064,458	140,561	80,053	none	86
Kennebec and Portland... "	72	952,621	29,800	2,514,067	168,114	100,552	none	45
Port, Saco and Portsmouth... "	61	1,355,500	123,884	1,459,384	208,669	.....	6	98
York and Cumberland... "	20	285,747	341,100	713,605	23,946	11,256	none	—
Boston, Concord and Montreal. N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	35
Concord... "	35	1,485,000	none.	1,485,000	305,805	141,836	8	107
Cheshire... "	54	2,078,625	720,900	3,002,094	287,768	55,266	5	48
Northern... "	82	8,016,684	.....	.....	328,782	163,075	5	47
Manchester and Lawrence... "	24	717,543	.....	.....	.....	.....	6 1/2	90
Nashua and Lowell... "	15	600,000	none.	651,214	132,545	51,513	8	109
Portsmouth and Concord... "	47	.....	.....	1,400,000	.....	.....	none	.....
Sullivan... "	26	.....	.....	678,500	.....	.....	none	21
Connecticut and Passumpsic... Vt.	61	1,097,900	550,000	1,745,516	.....	.....	none	37
Rutland... "	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	25
Vermont Central... "	117	8,500,000	3,500,000	12,000,000	.....	.....	.....	124
Vermont and Canada... "	47	1,500,000	.....	1,500,000	Leased to the Vt. C.	.....	Cent.	100
Western Vermont... "	51	392,000	700,000	.....	Recently opened.	.....	none	.....
Vermont Valley... "	24	.....	.....	.....	.....	.....	none	.....
Boston and Lowell... Mass.	28	1,820,000	.....	1,995,249	888,108	130,881	7 1/2	94
Boston and Maine... "	83	4,076,974	150,000	4,092,927	659,001	338,215	7	102
Boston and Providence... "	53	3,160,390	390,000	3,546,214	469,656	227,434	6	86
Boston and Worcester... "	69	4,500,000	425,000	4,845,967	758,819	331,296	7	101
Cape Cod branch... "	28	421,295	171,800	683,906	60,743	80,056	2 1/2	45
Connecticut River... "	52	1,591,100	193,500	1,801,946	229,004	72,028	5	55
Eastern... "	75	2,850,000	500,000	3,120,391	488,793	241,017	7 1/2	91
Fall River... "	42	1,050,000	none.	1,050,000	229,445	99,589	8	106
Fitchburg... "	66	3,540,000	112,305	3,623,073	574,574	232,787	6	93
New Bedford and Taunton... "	20	500,000	none.	520,475	164,230	43,950	7 1/2	117
Norfolk County... "	26	547,015	819,743	1,245,927	67,251	23,415	none	60
Old Colony... "	45	1,964,070	282,300	2,293,534	322,213	101,510	none	90
Taunton Branch... "	12	250,000	none.	307,136	137,406	24,399	8	.....
Vermont and Massachusetts... "	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	131
Worcester and Nashua... "	45	1,134,000	171,210	1,321,945	162,109	66,900	4 1/2	59
Western... "	155	5,150,000	5,319,520	9,953,759	1,339,873	683,194	6 1/2	99
Stonington... R. I.	50	.....	467,700	.....	240,572	110,892	.....	61
Providence and Worcester... "	40	1,467,500	300,000	1,781,498	253,690	139,514	6	.....
Canal... Conn.	45	.....	.....	.....	.....	.....	none	.....
Hartford and New Haven... "	72	2,350,000	800,000	3,150,000	639,529	294,269	10	118
Housatonic... "	110	.....	.....	2,500,000	329,041	168,902	none	.....
Hartford, Prov. and Fishkill... "	50	.....	.....	In progress	69,629	.....	none	.....
New London, Wil. and Palmer... "	66	558,861	800,000	1,511,111	114,410	.....	.....	.....
New York and New Haven... "	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	99
Naugatuck... "	62	926,000	440,000	.....	.....	.....	.....	.....
New London and New Haven... "	55	750,500	650,000	1,380,610	.....	Recently opened.	none	45
Norwich and Worcester... "	54	2,121,110	701,600	2,596,488	267,561	116,965	4 1/2	512
Buffalo and New York City... N. Y.	91	900,000	1,550,000	2,550,500	.....	Recently opened.	none	85
Buffalo, Corning and N. York... "	132	.....	.....	In progress	.....	.....	none	65
Buffalo and State Line... "	69	879,636	872,000	1,921,270	.....	Recently opened.	.....	130
Canandaigua and Niagara F... "	50	.....	.....	In progress	.....	.....	.....	.....
Canandaigua and Elmira... "	47	425,500	582,400	987,627	76,760	39,300	none	68
Cayuga and Susquehanna... "	35	687,000	400,000	1,070,786	74,241	23,496	none	.....
Erie, (New York and Erie)... "	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	74
Hudson River... "	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	65
Harlem... "	130	4,725,250	977,463	6,102,935	681,445	324,494	5	51
Long Island... "	95	1,875,148	516,246	2,446,391	205,068	44,070	none	28
New York Central... "	504	22,858,600	2,111,824	24,974,423	.....	.....	.....	111
Ogdensburg (Northern)... "	118	1,579,969	2,969,760	5,133,834	480,187	195,847	none	26
Oswego and Syracuse... "	35	350,000	201,500	607,803	90,616	43,609	4	70
Plattsburg and Montreal... "	23	174,042	131,000	349,775	.....	Recently opened.	none	.....
Rensselaer and Saratoga... "	25	610,000	25,000	774,495	213,078	96,737	.....	.....
Rutland and Washington... "	60	850,000	400,000	1,250,000	.....	Recently opened.	.....	.....
Saratoga and Washington... "	41	899,800	940,000	1,832,945	178,545	135,017	none	30
Troy and Rutland... "	32	237,690	100,000	329,577	.....	Recently opened.	.....	33
Troy and Boston... "	39	430,936	700,000	1,043,357	.....	Recently opened.	none	.....
Watertown and Rome... "	96	1,011,940	650,000	1,693,711	225,152	116,706	8	100
Camden and Amboy... N. J.	65	1,500,000	.....	4,327,492	1,888,385	478,418	10	145
Morris and Essex... "	45	1,022,420	128,000	1,220,325	149,941	79,252	4	.....
New Jersey... "	31	2,197,840	476,000	3,245,720	603,942	316,259	10	181
New York Central... "	63	986,106	1,500,000	2,379,880	260,899	124,740	3 1/2	.....
Cumberland Valley... Penn.	56	1,184,500	13,000	1,205,143	118,617	76,890	5	.....
Erie and North East... "	20	600,000	.....	750,000	.....	Recently opened.	.....	125
Harrisburgh and Lancaster... "	36	880,100	.....	713,227	1,702,523	266,827	8	.....
Philadelphia and Reading... "	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	72
Philad., Wilmington and Balt... "	98	3,850,000	2,403,276	6,813,329	667,785	383,501	5	76

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central.....	Penn. 250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	91
Philadelphia and Trenton....	" 30	.....	.....	.....	.....	.....	.....	102 1/2
Pennsylvania Coal Co.....	" 47	.....	.....	.....	.....	.....	.....	46
Baltimore and Ohio.....	Md. 381	9,188,300	9,827,123	19,542,307	1,325,563	615,384	7	46
Washington branch.....	" 38	1,650,000	.....	1,650,000	348,622	216,237	8	....
Baltimore and Susquehanna..	" 57	.....	.....	.....	418,678	152,536	.....	....
Alexandria and Orange.....	Va. 65	.....	.....	In prog.	.....	.....	.....	....
Manassas Gap.....	" 27	.....	.....	In prog.	.....	.....	.....	....
Petersburgh.....	" 64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville....	" 73	1,372,324	200,000	In prog.	.....	.....	.....	70
Richmond and Petersburg..	" 22	685,000	.....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac....	" 76	1,000,000	503,006	1,531,238	254,378	113,256	7	100
South Side.....	" 62	1,357,778	640,000	2,106,467	62,762	.....	.....	....
Virginia Central.....	" 107	1,400,100	446,036	In prog.	176,485	74,902	none	61
Virginia and Tennessee.....	" 60	3,000,000	1,500,000	In prog.	.....	.....	none	98
Winchester and Potomac....	" 32	180,000	120,000	416,532	89,776	.....	12	....
Wilmington and Raleigh....	N. C. 161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	....
Charlotte and South Carolina.	S. C. 110	.....	.....	.....	.....	.....	.....	....
Greenville and Columbia....	" 140	1,004,231	300,000	In prog.	.....	.....	.....	....
South Carolina.....	" 242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester.	" 110	.....	.....	In prog.	.....	.....	.....	....
Georgia Central.....	Ga. 191	3,100,000	306,187	3,378,132	945,508	508,625	8	115
Georgia.....	" 211	4,000,000	1,214	.....	984,424	456,468	7 1/2	....
Macon and Western.....	" 101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee.....	" 71	.....	.....	In prog.	.....	.....	.....	....
South Western.....	" 60	586,887	150,000	743,525	129,395	71,535	8	....
Alabama and Tennessee River	Ala. 55	.....	.....	In prog.	.....	.....	.....	....
Memphis and Charleston....	" 93	776,259	400,000	In prog.	.....	.....	.....	....
Mobile and Ohio.....	" 33	879,868	.....	In prog.	.....	.....	.....	....
Montgomery and West Point.	" 88	688,611	.....	1,330,960	173,542	76,079	8	....
Southern.....	Miss. 60	.....	.....	.....	.....	.....	.....	....
East Tennessee and Georgia..	Tenn. 80	835,000	541,000	In prog.	.....	.....	.....	....
Nashville and Chattanooga..	" 125	2,093,814	850,000	In prog.	.....	.....	.....	....
Covington and Lexington....	Ky. 38	1,430,150	900,000	In prog.	.....	.....	.....	....
Frankfort and Lexington....	" 29	357,218	.....	584,902	87,421	44,250	.....	80
Louisville and Frankfort....	" 65	.....	.....	.....	.....	.....	.....	....
Maysville and Lexington....	" 100	1,239,450	1,371,000	2,963,756	194,429	123,306	6	93
Cleveland and Pittsburgh....	Ohio. 95	.....	.....	.....	.....	.....	.....	....
Cleveland, and Erie.....	" 135	3,027,000	408,200	3,655,000	777,798	483,454	12	116 1/2
Cleveland and Columbus....	" 46	.....	.....	2,000,000	.....	.....	.....	98
Columbus, Piqua and Indiana.	" 61	.....	.....	.....	.....	.....	.....	....
Columbus and Lake Erie....	" 60	2,100,000	500,000	2,659,653	321,798	200,967	.....	99
Cincinnati, Ham. and Dayton	" 40	810,000	550,000	925,000	Recently opened.	.....	.....	72 1/2
Cincinnati and Marietta....	" 20	.....	.....	In prog.	.....	.....	.....	80
Dayton and Western.....	" 36	.....	.....	In prog.	.....	.....	.....	70
Dayton and Michigan.....	" 31	.....	.....	.....	.....	.....	.....	....
Eaton and Hamilton.....	" 37	.....	.....	In prog.	.....	.....	.....	....
Greenville and Miami.....	" 84	2,370,784	.....	2,634,157	526,746	314,670	10	119 1/2
Hillsboro.....	" 900,000	1,000,000	1,855,000	.....	.....	.....	.....	....
Little Miami.....	" 167	2,387,200	1,767,000	4,110,148	540,518	113,401	.....	95
Mansfield and Sandusky....	" 57	.....	.....	In prog.	.....	.....	.....	95
Mad River and Lake Erie....	" 187	1,750,700	2,450,000	.....	Recently opened.	.....	.....	97
Ohio Central.....	" 131	.....	.....	In prog.	.....	.....	.....	....
Ohio and Mississippi.....	" 83	.....	.....	.....	.....	.....	.....	....
Ohio and Pennsylvania.....	" 90	.....	.....	.....	.....	.....	.....	....
Ohio and Indiana.....	" 62	.....	.....	.....	.....	.....	.....	....
Scioto and Hocking Valley..	" 88	1,650,000	750,000	2,400,000	516,414	268,075	10	65
Toledo, Norwalk and Clevel'd	" 40	.....	.....	In prog.	.....	.....	.....	70
Xenia and Columbus.....	" 72	632,387	638,100	1,358,019	105,944	71,446	4	108
Evansville and Illinois.....	Ind. 81	.....	.....	In prog.	.....	.....	.....	....
Indiana Central.....	" 113	2,400,000	4,000,000	4,600,000	.....	.....	.....	136
Indiana Northern.....	" 92	1,932,361	500,000	In prog.	473,548	286,152	.....	100
Indianapolis and Bellefontaine	" 83	.....	.....	.....	.....	.....	.....	....
Lawrenceburg and Ind.....	" 90	.....	.....	In prog.	.....	.....	.....	....
Lafayette and Indianapolis....	" 62	.....	.....	.....	.....	.....	.....	....
Madison and Indianapolis....	" 88	1,650,000	750,000	2,400,000	516,414	268,075	10	65
Peru and Indianapolis.....	" 40	.....	.....	In prog.	.....	.....	.....	....
Terre Haute and Indianapolis	" 72	632,387	638,100	1,358,019	105,944	71,446	4	108
Rock Island and Chicago....	Ill. 113	2,400,000	4,000,000	4,600,000	.....	.....	.....	136
Chicago and Mississippi.....	" 92	1,932,361	500,000	In prog.	473,548	286,152	.....	100
Galena and Chicago.....	" 83	.....	.....	.....	.....	.....	.....	....
Michigan Southern.....	Mich. 315	2,499,410	2,629,000	6,430,246	592,187	293,046	.....	113 1/2
Michigan Central.....	" 282	4,000,000	4,067,396	8,614,198	.....	.....	8	106
Pacific.....	Mo. 38	1,000,000	none	In progress	Recently opened.	.....	.....	....

Share and Money Market.

We are not yet able to report any particular improvement in the Share or Money Market. For all purposes money continues very tight, while for speculation, or for carrying on our public works, etc., it is hardly to be had on any terms. The consequence is, that most of our railroad companies, whose works are in progress, are in distress for money, and their wants add materially to the present stringency. The ordinary sources of supply are suddenly cut off, and where companies are somewhat extended, and where the domestic means cannot be made available, or are not sufficient to their wants, we see no other course for them to pursue but to curtail their operations to their means. Under the present state of the money market such must be the result, and the sooner our companies prepare for it, the better.

The present stringency contrasts strikingly with the easy money market, and the activity which prevailed a year since; and the great depreciation of railroad securities of all kinds, ranging in almost all cases from 10 to 20 per cent., naturally suggests the enquiry whether the usefulness of our railroads and their value in investments of capital, have been over estimated, and whether the confidence felt in these works a year since was well placed. This inquiry, which to a certain extent is the result of a distrust caused by the extreme depression of prices, may be best answered by reference to the earnings of the roads. In the case of every road certain results are predicted,—a given income upon their cost. When this is realized, a work may be said to be successful. Subjected to this test, we can hardly name a road that has been constructed the past five years, that is not eminently successful. We know of no completed road, in which the public are generally interested, that has not earned an ample return upon its cost. So far are our roads successful; and the fact that capital is suddenly withheld from them by an extraordinary state of affairs no more invalidates the soundness and value of these works, than the sudden decline in *Consols*, the safety of those securities. The earnings of our roads were never so large as at the present moment, and these, from the rapid development of the country, and the opening of new, which add largely to the business of the old roads, are increasing much faster than the cost of our roads. Every day's expense is calculated to increase the confidence felt in railroads as property.

The following table will show the earnings of several roads for October, compared with the corresponding month of the past year, viz:

The earnings of the following roads for the month of Oct. are as follows:

	1853.	1852.
New York and Erie.....	\$552,995	\$376,833
Hudson River.....	153,258	104,309
Michigan Southern.....	220,804	134,737
Ohio and Penn.....	84,039	44,741
Milwaukee and Miss.....	41,377	15,072
Rock Island and Chicago....	67,097	new.
N. York and N. Haven.....	93,252	64,524
Norwich and Worcester....	31,867	24,886
Cincinnati, Hamilton and Dayton.....	38,085	30,001

Totals.....\$1,282,774 \$797,113

Increase.....\$485,661

Equal to 60 per cent. or over 50 per cent. deduct.

ing the earnings of the Rock Island road. We think the increase for the whole country for October, will be at least thirty-three per cent over the past year.

The following is a statement of the deposits and coinage at the Philadelphia Mint during the month of October:

GOLD.	
Double Eagles.....	\$360,685 00
Half Eagles.....	118,625 00
Quarter Eagles.....	239,660 00
Gold Dollars.....	582,956 00
Total.....	\$1,801,926 00
In Bars.....	3,615,286 87

Total Gold.....\$5,317,162 87

SILVER.	
Half Dollars.....	\$218,000 00
Quarter Dollars.....	775,000 00
Dimes.....	154,000 00
Half Dimes.....	63,000 00

Total.....\$1,210,000 00

COPPER.	
Cents.....	\$3,500

GOLD BULLION DEPOSITED.

From California.....	\$4,327,000
From other sources.....	125,000

Total.....\$4,452,000

Silver Bullion deposited.....\$620,000

The total gold deposits at the Mint in the first ten months of the last three years, compare as follows:

	1851.	1852	1853
Gold.....	\$36,795,526	\$50,439,354	\$46,146,714

The total coinage of the first ten months of the present year has been as follows:

Gold.....	\$43,456,466
Silver.....	6,007,666
Copper.....	44,815

Total.....\$49,508,158

Ogdensburg, Clayton and Rome Railroad.

The contracts for grading, masonry and bridging of the Ogdensburg, Clayton and Rome railroad, were awarded Oct. 31st, for the whole line of road from Rome to Ogdensburg, except two sections in Jefferson county. The contracts are with strong companies; the whole work is to be finished by the 1st of Sept. 1854, and the rails are to be laid between Rome and Lowville, and between Ogdensburg and Philadelphia, making a distance of about 90 miles, within a year from this day.

Cleveland, Madison and Louisville Railroad.

We learn that a company has been organized at Cleveland for the purpose of building a railroad from Bellefontaine, via. Troy, to Eaton, to connect with the Madison and Lake Erie road. Individual stock subscriptions have been made to the amount of \$500,000, and the people of Cleveland and along the line of the proposed road, stand ready to increase these subscriptions to the amount necessary to put the road through in the shortest possible time.

Sunbury and Erie Railroad.

The difficulties between the County Board of Philadelphia and the above company have resulted in the resignation of the presidency of the latter by Christopher Fallon. John Tucker, of the Reading railroad, takes the post temporarily.

Editorial Correspondence of the Railroad Journal.

BUFFALO, Oct. 20.

Our letter of yesterday was devoted chiefly to a description of the topographical features of the route occupied by the New York Central railroad and Erie canal, with a brief review of the rapid increase, and of the present amount of the movement both of persons and property over it. An appropriate supplement will be a short notice of the city of Buffalo, which is the key to this route, and the great point of embarkation of this commerce and travel between the eastern and the western states.

In our previous letter we stated that the results which the Erie canal has achieved, could not have been effected without a remarkable adaptation of the route to its objects. It is not only the best one to be found, from one extreme of the union to the other, but is absolutely the best that could be formed, in having a uniform slope to tide water. When we gain the crest of the ridge dividing the waters flowing into the St. Lawrence basin, and the Atlantic, we are still one hundred feet below Lake Erie, and when we reach Buffalo, which is situated at its outlet, we stand upon the great Central plateau occupied by the Upper Lakes. These lakes, instead of lying in a deep gorge, or valley, as might have been expected from general analogy, are placed upon a summit from which the waters flow each way into the sea.

The dividing ranges between the lakes and the Ohio and Mississippi rivers, on the south and west, are in some cases only a few miles from the former, and in some instances so low that in seasons of high water, boats pass from one to the other. The room where I now write, which is elevated about fifty feet above lake Erie, is some thirty or forty feet above the highest ridge which separates the Illinois river from lake Michigan. It was the original plan to feed the Illinois canal from this lake, for which a cutting of only eight feet was required; but as this would have been through solid rock for some distance, it was deemed better economy to substitute a lock, and feed the level above the lake, from the Chicago river, without any cutting whatever. A dam of only a few feet high at this place, would turn the mighty torrent which is rushing past towards the gulf of St. Lawrence, into the Gulf of Mexico! These facts show how uniform is the elevation of the great plateau, and how slight has been the disturbance, forages, of the upper crust of the Great Valley. As geologists tell us that the Niagara river has been forty thousand years in cutting the channel it occupies from Lake Ontario to the falls, the balance of power on this continent must have been much better preserved than in Europe, and at vastly less expense.

The city of Buffalo being upon the same level with the great interior basin of the country, and being the point where its immense commerce debouches, if we may use the term, toward the sea, the value of its position will be at once appreciated. The lakes, of themselves afford an unrivalled medium of internal commerce. This commerce, before the opening of the canal had hardly an existence, nor was Buffalo anything more than an insignificant village. In 1820 it had a population of only 2099. In 1830, five years after the opening of the canal, its population went up to 8,668. In 1840, it numbered 18,213 and in 1850, 42,216 inhabitants. Recently the area of the city has been

enlarged so as to take in neighboring villages, which were in fact parts of the city, though under different organizations; and competent Judges place its population at the present time, as high as 65,000. We presume that this is not an extravagant estimate. Its progress at the present time, is much more rapid than at any former period of its history. It is admirably built, and its principal street would do credit to the city of New York, to which, in its broad avenues, its spacious and elegant structures, in the activity and bustle in its streets and upon its docks, it bears a striking resemblance.

The growth of its commerce has kept pace with its population. The following statement will show the ratio of increase of some of the principal articles of export sent East, for a period of years:—

	1835.	1840.	1845.
Flour, bbls.....	86,283	633,790	717,406
Wheat, bushels.....	95,071	881,192	1,354,990
Corn, do.....	14,679	47,885	33,069
Butter, cheese, lard, lbs.....	1,030,632	3,422,687	6,597,007
Wool, lbs.....	140,911	107,794	2,957,007

	1850.	1851.
Flour, bbls.....	984,430	1,106,353
Wheat, bushels.....	3,304,647	3,668,005
Corn, do.....	2,008,967	5,789,842
Butter, cheese, lard, lbs.....	17,534,981	11,102,282
Wool, lbs.....	8,805,817	7,857,907

The exports East were through the Erie canal.

Of the three articles first named, nearly the whole were received from the Western states.

We have not before us the means of presenting a comparative statement of the arrivals and clearances by the Lake for a series of years. For 1851 they were as follows:

Arrivals.....	4,533
Departures.....	4,517
Tonnage.....	1,536,189
Do.....	1,551,946
	3,087,530

We have not before us the means presenting a corresponding statement for 1852. Allowing, however, the same ratio of increase for the two past, as for the preceding years, the number of arrivals and departures for 1853 will exceed 10,500, and the tonnage 4,000,000 tons.

For 1851 the commerce of the ports were as follows:

Imports.....	731,462 tons, valued at...\$31,889,951
Exports.....	204,536 " " " 44,201,720

Totals. 935,998 \$76,091,671

The increase in 1851 in the value of the imports and exports over those of 1850 was \$9,064,153. At the same rate, the commerce of the port for the present year will equal \$90,000,000, a value which is greater than that of any city in the United States, with the exception of New York and New Orleans, and conclusive evidence of the immense internal commerce of the country.

The imports of Buffalo are chiefly the products of the western states. The exports consist mostly of merchandise received by way of the canal, and forwarded west. This commerce, vast as it is, is increasing with extraordinary rapidity. In addition to the produce of the north-west, the tobacco and cotton of the southern states, are already beginning to take the route of the Erie canal to market. Upon the enlargement of this work we see no reason why it will not command the trade of the Mississippi Valley above the mouth of the

Ohio, and a large amount below the point. The enlarged canal will have more than double its present capacity, and will be equal to a movement of 5,824,000 tons, in either direction, or 11,648,000 in the whole. The tonnage of the boats will be increased from 75 to 224 tons, and it is estimated that 26,000 lockages may be made each way. The enlargement will reduce the cost of transportation to one half the present charge, a saving in which the whole country will participate.

The present growth of Buffalo has been chiefly due to the Canal. Although the Central line of railroad was completed January, 1, 1843, the imposition of canal tolls upon all freights carried by it, restricted its business of the road almost entirely to passengers. These impositions have been removed from all the roads in the state, and all are now active competitors of the canal, for the business of which it formerly had an exclusive monopoly. There are so many new, and in many particulars, much more potent agents in their influence in promoting the prosperity of a city than even such a work as the Erie Canal, and the influence in the present case will be seen in the much more rapid growth of Buffalo, than at any period in her previous history.

With the completion of the Buffalo and Brantford, the Buffalo, Corning and New York railroad, and the road now in progress to the Pennsylvania Coal Fields, Buffalo, will have all the railway accommodations needed by her people, or that can contribute materially to the progress and welfare of the city. They will radiate in every direction, and bring her into connection with every important locality in the state and in the whole country. These roads will be the following:

Buffalo and Niagara Falls.
Buffalo and Lockport.
New York Central.
Buffalo, Corning and New York.
Buffalo and New York City.
Buffalo and Alleghany, (coal road.)
Buffalo and State Line.
Buffalo and Brantford, (in Canada.)

These roads not only give a choice of routes to New York, but to the western states. They will give to the city all the trade to which it is entitled, and will at the same time render it a convenient point in the great line of travel between the east and west.

The most important road entering Buffalo from the east is the Central. Of those completed, the next in rank is the State Line road. The two roads in progress, the Buffalo and Brantford, and the Buffalo and Alleghany, may be regarded as indispensable to the highest prosperity of the city. The former will give to it the trade of the Peninsula of Canada, one of the richest and most productive portions of this continent, a trade which bids fair, eventually, to equal in importance what this city now receives from the State of New York. Roads running west from Buffalo are much better adapted to increase its trade than those running east, owing to the tendency of the trade of the interior toward the city of New York.

The Buffalo and Alleghany road is indispensable as a means of ensuring a constant and steady supply of coal. At the present time the city is supplied from Erie. The coal reaches the lake through the Mahoning canal. This work being closed by ice a considerable portion of the year, involves the

necessity of laying in large stocks in the fall, which, with the present circuitous mode of transportation adds largely to the cost of this indispensable article. The Alleghany road will run direct to the coal fields, which it will reach in a distance of less than one hundred miles. The bituminous coal of Northern Pennsylvania is well known to be of the best quality; and as it is found in the greatest abundance above water level, it is believed it can be delivered in Buffalo, over the proposed road, at a cost, to the consumers, not exceeding \$2 50 per ton. At this price, the people of Buffalo expect to render their city the seat of manufacturing establishments, which shall in time fully equal its commercial interests. We know of no places more favorably situated to become manufacturing towns than the leading Lake cities. They can be abundantly supplied with coal at cheap rates. In no part of the world can all the prime articles of food be supplied at a cheaper rate, or in greater abundance. The climate is admirably adapted to a high development of mental and physical activity. The Lake constitutes an unrivalled medium for the distribution of fabrics to the consumer. The Sault Ste. Marie canal will furnish abundant supplies of fine copper, and the best iron ores in the world, which can very easily be brought into contact with coal found on the southern shore of Lake Erie. Upon the shores of the great lakes exist all the elements necessary to the formation of immense manufacturing communities, and will in time be surrounded by a vast population as consumers for the former. As sites for manufacturing, none of the Lake cities present superior advantages to Buffalo, while its greater wealth, and the more dense population by which it is surrounded, will enable it to take the lead in these new branches of industry.

An abundant supply of coal at Buffalo at cheap rates is a matter of great importance to the commercial marine of the lakes, and will render Buffalo still more than at the present time, the convenient point for the debarking of western produce designed for eastern markets. As the proportion of down to up freights, is as 4 to 1, most of the lake craft now return light to the upper ports. The construction of the Alleghany road would always give them a back freight, a full load in both directions. This fact, with the enlarged canal must forever establish Buffalo as the great entrepot of the commerce between the eastern and western States.

Chicago Locomotive Works.

We learn from the Chicago Press that a meeting was held recently at which \$65,000 was subscribed, and steps taken to perfect the organization of this company. It is intended to start with \$150,000 capital.

Among the stockholders are Thos. Dyer, Col. E. D. Taylor, Wm. H. Brown, E. H. Haddock, Geo. Steele, B. W. Raymond, I. H. Burch, E. W. Willard, A. G. Throop, and W. H. Scoville.

Northern Indiana Railroad Company.

At the annual election of Directors of this company, held at La Porte on the 25th ult., the following persons were elected Directors:

John B. Jervis, George Bliss, John Stryker, Edwin C. Litchfield, Charles Butler, Hugh White, Ezekiel Morrison, Elisha C. Litchfield, James Archibald.

Gauge of Railroads.

The railroad system of our country furnishes abundant examples of a want of conformation of gauge to an established standard. The question of the relative superiority of the gauges already laid down is not, however, closed from discussion. The common gauge of 4 feet, 8½ inches, being largely adopted and being still the standard of nearly all of the older roads, it is to be supposed that good reasons should exist for any change, reasons which must be based upon the mechanical and practical superiority of the standard proposed for adoption, and in no case for the purposes of obstruction or competition.

The advantages of continuous connections are sufficiently known so as not to require elaboration in this place. Since it has been determined to bridge the Mississippi at Rock Island, there is probably no road in America that would not be benefited by a conformation to a standard gauge. It is not urged that the great advantage of uniformity of gauge consists in the facilities for doing a through business without breaking bulk; for the local trade, which is independent of local divisions of a railroad system, is embarrassed as much in passing a break of gauge as if the source and destination were hundreds of miles apart; while the relative disadvantage is increased in inverse proportion to the distance for which the movement is made.

The objections against exchanging cars with distant roads do not have the same force in doing a business with adjoining roads, as in the latter case the empty cars can be at once returned to the owners without passing through third hands. If the best gauge be adopted, which would secure uniformity, it would not then be imperative that exchanges of equipment should be made if it was found that countervailing disadvantages existed in such a practice.

The changes made from the common or original gauge have always consisted in an increase of its width. The best gauge, without reference to any of those already in existence, cannot be determined except by a long course of experiment, but among those before us, experience, we believe, has indicated the most economical.

The arrangement of machinery of the locomotive has always been a favorite point for the advocates of a change of gauge, as it was premised that the prevalent gauge was not sufficient for developing the capacity of the engine. The experience of the present day has, however, adapted the engine to the narrowest gauge, and with a capacity not contemplated by any railroad men at the time this objection was originally urged. This has been attended with the greatest superiority of construction and perfection of action over the engines of former times; indeed, so perfect is the adaptation of the engine that it is questionable if an extensive change of gauge does not impair the value of its proportions and arrangements. We believe it does, and shall give our reasons in due course.

Throwing the question of gauge back on to its own merits, independent at least of the locomotive, (making that a separate consideration,) we have the illustrations for our argument in the extremes of the common and the New York and Erie gauges.

The least limit of the width of gauge is that which will afford the necessary capacity and in-

sure the necessary steadiness of the carriages to be used. The most advantageous application of the power of draught is that where the load tends to move in the direction in which the power is applied. The position of the wheels, or in common phrase the "tracking of the wheels" determines the direction in which the load tends to move. This direction may not be essentially the same as that in which the power is applied, in which case the flanges of the wheels are forced against the rails and produce much friction, or "blinding." With the track frame, in almost universal use in America, the center pin becomes a fulcrum upon which the wheels turn and adjust themselves to the track and to the direction of the draught. The distance of the wheels from this fulcrum is the amount of leverage which a resistance on one rail has to change the position or "tracking" of the wheels, and to give the car a tendency to move in a direction out of the line of traction. The truck, moreover, cannot turn beneath the car except by slipping the wheels on one or the other side, and the wider the truck the greater is the amount of slip and friction in obtaining the same angular change of position.

These considerations affect the subject of the relative resistances of the gauges and will be more fully considered hereafter.

An important, and with some a primary question in this discussion is the relative capacity of the gauges. The same load can be carried upon any gauge by varying the relation of the length, width, and depth of the train. To reduce the length of a train of given weight the width must be increased; the friction, dependent upon the weight, is not lessened, the resistances from concussions, etc., will be diminished by diminishing the number of wheels, but increased by increasing the distance between the rails for the reasons already given. The atmospheric resistance, upon any assumption, cannot be diminished, as while the weight and bulk are unchanged the *frontage* is increased.

There is one important consideration in any attempt to increase the capacity of a train by adding to its width and to that of the track on which it is carried. The influence of heavy loads on ordinary rails has been found to be a practical limit to the increase of weight. Now, to concentrate the bulk of a train by increasing its width, involves *concentration of weight*. As the train is widened no more wheels are added and the weight is concentrated, involving increased wear and deflection of rails, and of the road bed.

It will not, however, require any especial demonstration to show that the circumstances of railroad carriage have not yet made the capacity of the road an obvious and necessary consideration, and we may assume that so far as moving freight or extremely heavy passenger trains is concerned the capacity of the locomotive is the capacity of the road. By the capacity of the locomotive we do not mean its *size* but its *load*, a distinction which, while it may not appear to be founded on a difference is, nevertheless, authorized by abundant evidence that engines of the same size, on different gauges, do not have the same useful effect.

The advantages claimed for the broad gauge have been stated in previous articles in the *Journal*, but may again be enumerated to direct attention more clearly to both sides of the question.

1. The track being wider a depression of either rail produces less transverse inclination and preserves more nearly the equal distribution of weight on all of the wheels.

2. The center of gravity is relatively lowered, whereby the cars run steadier and are less likely to leave the rails.

3. With an equal relative height of center of gravity the wheels may be enlarged, whereby the axle friction is reduced.

4. Having the same steadiness the cars may be increased in width, giving better stowage of freight and more comfortable accommodations for passengers.

These are the sum of the advantages claimed for the cars for the broad gauge. They consist simply in less friction and superior accommodations, or, with the same friction and equal accommodations, more safety and steadiness, and more equal bearing on the rails. In either case some of these advantages are had at the sacrifice of some others.

Opposed to these assumed advantages, or as rendering them incapable of attainment, are

1. Increased resistance of a load supported on wheels at a wide distance apart, and due to the greater leverage of the wheels and axles to change their position under the car, and to acquire a tendency to run out of the line of traction. This resistance is encountered at every inequality in the resistances on both rails, either from obstructions on the rail, from unequal loading of the car, or from curves. The resistance is increased also by the greater intermediate distance at which the car is supported on the trucks, whereby the movements of the truck produce greater friction against the car, as the surfaces must move further to produce the same angular movement of the truck. Increasing the length of axles and distance between wheels tends to produce the increased resistance of drawing a load sideways instead of endways. In this respect a railroad with a single rail, if it could afford the necessary capacity and steadiness to the cars, would be mechanically superior to any system of double or treble rails, except that it would involve concentration of weight of which we shall speak hereafter. The friction of the journals is also increased in proportion as they are separated for the same reason already given that any force which operates to retard either wheel has a greater leverage, and therefore increases the side thrust against the bearing.

The resistances from "concussions" at high speeds are known to exceed those of friction and of the atmosphere. By concussions are understood all forces (except those from the atmosphere and gravity) which are exerted against the motion of the car in a longitudinal or transverse direction, the axle friction being due to vertical force. Concussions at joints, dragging of wheels, binding of flanges, etc., are all included in the general term "concussions," and it is to their resistance that we must charge the extreme consumption of power at high velocities. And as these resistances are indisputably increased by increasing the leverage of their force, an increase of width between the rails is equivalent to an increase of resistance.

2. Concentration of weight is the second objection. There is great temptation to this evil, in the use of the wide gauge. In fact, the extra strength of axles due both to wider gauge and larger wheels,

extra weight of car bodies, etc., almost necessarily involves concentration of weight. The result is known to be crushing or deflection of the rails, either of which is attended with a large expense for maintenance of track. Where deflection occurs, more power is required, the shocks from the load are increased and tend in a greater degree to destroy the road and the carriage; while the road-bed yields at successive points, eventually loosening and unsettling its foundations. Our own broad gauge roads have the heaviest equipments in the world.

3. The resistances are much greater on curves, and cannot be avoided by any limit of the radius of curvature. The difference in the lengths of outer and inner rails is always proportional, on any curve, to the difference of gauge.

4. By enlarging the wheels the leverage of the strain on the axle is increased whenever a curve is met. Besides, cast wheels of large diameter are more difficult of manufacture and are not as reliable. Besides also, of the weight of the wheels, (generally one fourth of the whole car,) is increased by an increase of size, in a greater proportion than in the advantages of reducing the friction. One wheel (of the plate form, which is the best for many strong reasons,) being of twice the diameter of another, and consequently having twice the leverage to overcome friction, has four times the weight.

It is in the increased resistances and in the concentration of weight involved in the broad gauge that it is mechanically inferior to the narrow gauge. Its advantages are neutralized in these circumstances. The lessened friction due to larger wheels is more than made up on ordinary curves and in the greater weight carried, as the car frames and axles are heavier, to possess the *same strength* as on a narrow road.

Superior accommodations for passengers involve also increased weight, and can be had on any road by increasing the proportion of dead weight to live weight. The extreme wide cars are not wide enough for any more than the usual number of passengers in narrow cars, and are yet wider than is necessary for the same number. All of their extra width and extra weight is mechanically wasted. The standard width of freight car affords all needed room for the stowage of any freight, as for instance the Erie road has nearly 2500 cars of the same width as for a narrow gauge.

The broad gauge *engine* is the next consideration in the discussion. The disadvantages of draught are such that we find the six foot track using engines of from 28 to 33 tons, for the same work as is done on the four feet eight and a half inch track with from twenty-one to twenty-four tons, a difference of weight alone of 33 per cent! The use of the 6 ft. gauge has shown its resistance as compared with the common track, as the proportion between an engine with 17 inch pistons, and one with 15 inches! an increase of surface of over 28 per cent.

This gauge, of six feet even, (the ultimatum of the broad gauge is 7 feet,) gives more room than is necessary for the arrangement of the machinery while its extreme width has induced a preference for the inside connected engine, of which we have spoken at length in a previous number of the *Journal*. The crank engine is therefore adopted with all its faults, on account of the unfortunate width of track.

While the inside connected engine is retained as a necessary attribute of the wide gauge, the narrow gauge has the advantage of allowing a larger size of driving wheel. The relative center of gravity is no higher in the outside connection of the narrow gauge than the inside connection, with same sized wheel on the wide gauge. The height of the center of gravity of engine is not perhaps, however, an essential point with those who advocate a broad gauge, as they generally prefer that arrangement of engine which involves the highest boiler.

So far we have placed the discussion on its own merits, without depending, to any great extent, upon illustrations of our conclusions. But the Erie road furnishes these in abundant instances. It is to be regretted that the claims made in favor of the gauge of this road should have never been realized. Let us see:

1. Equal bearing of weight on wheels. Neutralized from the ordinary weight exceeding the maximum on the narrow gauge, the Erie having the heaviest equipment in the country.

2. Larger wheels could be used. The Erie use 33 inches for all cars; other roads use 36 inches for passenger cars and 30 for freight.

3. Greater width of freight cars. Result: have been kept of the same width as on other roads.

4. From above, same load in less length of train. Lost from the reason given in No. 3. Would involve, besides, concentration of weight.

5. More comfortable passenger cars. Result:—the Michigan Central, (narrow gauge) have cars affording equal accommodations, safer, and having less dead weight.

6. Better arrangement of engine. Result: more room for "arrangement" than is wanted and the adoption of the crank engine with all its obvious and demonstrable imperfections.

7. Could get the same heating surface with shorter tubes. Result: the Erie road has the largest proportion of long tubed engines of any road in the country excepting the Baltimore and Ohio, which has far heavier grades.

8. Larger drivers. Result: only two engines on the road having drivers above the usual or standard size of six feet. Those two not used except for gravel and wood trains.

9. Larger engines working more economically. Result: the engines are necessarily larger (33 per cent heavier) to do the same work, and are working at a disadvantage as is shown by their contracted blast pipes.

Altogether, apart from the intrinsic merits of this gauge, it requires more land, wider cuts, embankments, viaducts and bridges, and ought to be laid with a much heavier and more expensive rail. It is a costly gauge, and requires a costly equipment.

As no reasonable claims can be urged for a gauge intervening between a four foot eight and a half inch and a 6 feet gauge, all such gauges can be regarded only as obstructions. They have produced one good however at the west, in encouraging the manufacture of cars upon the spot, and the manufacture of engines ought to and will soon follow.

The capacity even of the narrow gauge is beyond the demands of transportation, either in speed or capacity of trains. Its engines can be and have been arranged with 20 inch cylinders by 22 inch stroke, on the Balt. & Ohio road; 8 feet drivers on

the Camden and Amboy in America and on the London and North Western road in England; with two thousand two hundred feet of heating surface on the London and Northwestern road, and with a weight, on the same line, of 37 tons. Such extremes as these are perfectly admissible within the capacity of the narrow gauge, but are entirely beyond the wants of any legitimate transportation.

The present character of rails and construction of our roads limits the proper capacity of the locomotive to its distribution of weight. There are good reasons for believing that the locomotive is now developed. There is an analogy in all conditions of progress. There is a measure of means and of results. The railway has been wonderfully increased in capacity since 1830. But must this always continue to be the case? Must the child forever grow? Does not the development of a created work attain in time to its greatest useful efficiency, and has not the railway reached that point under the present principles of its construction?—We believe so.

Let us not forget the principles. Our loads must be arranged in the direction in which they are drawn; this is the principle of adjustment giving the least resistance; giving the greatest efficiency to our motive power. The train is flexible and easily admits of taking any length. Again, power in the locomotive brings weight, and this involves destruction of our road. When our motive over weighs all the road can bear, it must not be increased by widening that road and applying the additional power necessary to operate it. Z. C.

Central Railroad of Georgia.

William M. Wadley, Esq., the Superintendent of this road, has adopted the plan of making a monthly abstract of his pay rolls for transmission to the officers of other roads, whereby railroad companies may be enabled to make general comparisons of the extent and compensation of the operating and repair force for any definite amount of business. We believe the comparison of such statements, with the information such as accompanies the one by Mr. Wadley, would operate as a more direct test of the economy of working our roads than the publication of any other kind of information. Mr. Wadley has furnished us with an abstract of this kind, made up from the pay rolls of the Georgia Central road, for September, 1853.

From this we learn that the total number of employees of the company is 927, equalling 3,6-10 per mile for 257 miles of road and branches. Of this number there are 20 officers, 44 machinists, 32 blacksmiths, 29 engine men, 78 firemen, 85 carpenters, 26 masons, 38 warehouse men, 29 cotton yard men, 17 watchmen, 20 conductors, 67 train hands, 361 laborers, 21 station agents at way stations and 4 supervisors and 56 overseers on road repairs.

Of the machinists, eighteen receive \$1 per day, eleven \$2 25 per day, master machinists \$100, and \$150 per month respectively, while the remainder are employed at prices varying from \$1 25 to \$2 50 per day.

Of blacksmiths, seven receive \$2 per day, eight receive \$1 12½, while the others have from 75 cents to \$3 daily.

Of engineers, three receive \$60 per month, ten, \$35, and five, \$30 per month. The others receive from \$40 to \$75 monthly.

The larger number of firemen receive \$1 per day each.

Of conductors, four receive \$40 per month, five, \$50 and six \$60 per month; the others at intermediate prices.

The train hands are paid mostly \$1 per day.

Cotton yard and warehouse men and watchmen receive generally \$1 per day.

Of laborers the larger number (slaves) are paid \$12 50 per month.

The total amount of pay roll is \$21,378 37.

The following information relative to the character and business of the Georgia central road will facilitate comparisons of these statements with those of other roads.

Length of road, Savannah to Macon... 191 miles.
Augusta and Waynesborough branch... 27 "
Milledgeville and Eatonton branch.... 39 "

Total miles of road and branches.... 257 miles.

A day and night passenger train is run daily from Savannah to Macon, which, for September, gives as miles run..... 19,100 "

57 freight trains left Savannah in Sept. 15,502 "

Mileage of Augusta and Waynesboro' branch..... 1,674 "

Mileage of Milledgeville and Eatonton branch..... 2,418 "

Lumber train running for repairs.... 1,966 "

Gravel train..... 594 "

Five irregular trains left Savannah.. 1,910 "

Total mileage for September, 1853. 43,164 miles.

Earnings for September, 1853.

Passage and mails, main Stem..... \$14,706 04

Freight do..... 58,060 36

Passage and mails, A. & W. R. R..... 594 23

Freight do..... 354 29

Passage and mails, M. & E. R. R..... 945 85

Freight do..... 1,220 66

\$75,881 43

Total amount of pay roll..... \$21,378 37

Amount of do. chargeable to new depot at Savannah..... \$1,770 37

Amount of do. chargeable to new cars built over depreciation of old stock 453 32

Amount of do. chargeable to construction above original state of road... 1,067 31

Total chargeable to capital..... 3,291 00

Am't legitimately chargeable to expenses..... \$18,087 37

Equalling 24 per cent. of total earnings.

Alexandria, Loudoun and Hampshire R. R.

The construction of this road, which is to connect the coal fields of Alleghany with tide water at Alexandria, cannot but be of the deepest interest to all the citizens in this region. The question heretofore has been as to the practicability of constructing a road across the Blue Ridge, east of the Shenandoah, and the mountains of Hampshire county. We regard this matter as at least approximately settled by the recent report of Charles P. Manning, Esq., the Chief Engineer of the company, to the Stockholders.

Mr. Manning has, for some time past, had five corps of engineers in the field, consisting of ten persons each, engaged in making surveys at different points along the line between Alexandria and Paddytown. In regard to that part of the route between Alexandria and the Shenandoah river, he presents the following as the results of the surveys as far as they have been completed. There are two practicable routes, one through Keyes' Gap and the other through Snicker's Gap,

within the limits of the following grades, viz: for grades ascending westward 79 2-10 feet per mile, grades ascending eastward 58 8-10 feet per mile, with curves of 1000 feet radius. On either of these lines a first class railroad can be constructed for two tracks, and provided with one, for a sum not exceeding an average of \$30,000 per mile, including tunnels. This would make the cost of the road from Alexandria to the Shenandoah river, by the Keyes' Gap route, (a distance of 65 miles,) \$1,800,000.

As to the surveys west of the Shenandoah, Mr. Manning says they have verified his expectations and confirmed his belief that a route can be obtained across the country to Paddytown, without exceeding the limits of grade and curvature assumed for the eastern end, at an average cost of \$50,000 per mile. The total distance from the Shenandoah to Paddytown is approximately estimated to be from 97 to 103 miles, which excess in length over a measured air line is deemed necessary to the acquirement of the proposed grades. Assuming the distance to be 100 miles, the cost of the western end of the road would be \$5,000,000. Thus it appears that the entire cost of the road from Alexandria to Paddytown will be near \$7,000,000.

Mr. Manning expects to be able in the month of January to make a report of facts sufficiently minute to develop all the merits and decide the great question of literal cost of construction.

Now that it is pretty conclusively demonstrated that a practicable route can be obtained for this great work, we hope to see it pushed forward with vigor. The advantages of its construction are too manifest to need any mention at our hand.—*Cumberland Miner's Journal*.

Journal of Railroad Law.

THE EFFECT OF SPECIAL AGREEMENTS WITH CARRIERS.

The fifth volume of Sandford's Reports of the Superior Court of the State of New York contains the notable case of *Stoddard and Lowrey against the Long Island Railroad Company*,—a case which shows strongly the influence exerted in respect to commercial questions, by the National over the local courts.

The action was brought against the defendants as owners of the steamboat New Haven to recover damages for four cases of silk belonging to plaintiffs, which in January 1846 were at New York delivered on board of the said steamer, to be transported to Allyn's Point, and thence by railroad to Boston. The goods had been delivered for such transportation to Adams and Co., the common carriers at their office in New York. Shippers and consignees pay Adams and Co., freight for the whole route. On this occasion, they placed the goods on board of the New Haven, but they delivered the same to an agent of their own who took charge of the goods, and packed them in a crate furnished for the purpose. On the arrival of the boat at Allyn's Point, the crate containing the goods, from the gross negligence of the hands of the boat, fell over-board, and consequently the silks sold for \$1257 less than they otherwise would have done.

The defendants admitted themselves to be owners of the New Haven, which they had purchased from Cornelius Vanderbilt. It was proved that there was a special agreement between Vanderbilt when owner and Adams and Co., which agreement was by mutual consent renewed and adopted by defendants upon their becoming owners of the boat. By this agreement, Vanderbilt was bound to transport on the Norwich line of steamers, to which the New Haven belonged, on each passage between New York and Norwich, one messenger

and two crates of specified size. Adams & Co. agreed to be alone responsible for any losses or damage to merchandise, etc., transported as aforesaid, and to advertise proper notices accordingly.

From the evidence produced upon the trial, it was quite doubtful whether the hands who occasioned the loss were acting of their own accord, or whether they acted under the direction of Gould, the agent of Adams & Co.

Judge Sandford charged the jury substantially—That if defendants were common carriers of the goods in question, they are liable for the loss sustained, although it happened on an extra trip, and whether or not they are such common carriers depended upon the question whether the goods were in their keeping at the time of the loss.

If Adams & Co. were defendant's agents, or if defendant had authorized plaintiffs to believe them to be such agents, the jury would be warranted in finding that the goods were in defendant's keeping as common carriers, and that they were liable for the damage sustained.

On the other hand if plaintiffs dealt with Adams & Co., as principals, the defendants are not liable as common carriers, but Adams & Co., are alone responsible.

But it is contended that defendants are not merely liable as common carriers, but also upon the distinct ground of having been guilty of gross negligence.

To determine this, the jury will inquire whether the hands in running the crate ashore acted of their own accord, or whether they acted under the direction of Gould, the agent of Adams & Co. If Gould assumed to direct the operation, the defendants are not liable on this ground of negligence. But if the crew acted without reference to Gould's wishes, the defendants are liable, and this is so, although the Captain and First Mate had given them orders to the contrary.

The jury found for defendants. A motion was made for a new trial and denied, mainly upon the following grounds, on which was founded the opinion of Judge Duer.

1st. The liability of defendants as common carriers, was restricted by the terms of the special agreement between them and Adams & Co.,—and this restriction is valid in law, as was held in *Harden, vs. the New Jersey Steam Nav. Co.* 6 Howards Reports of the Supreme Court, 344. This being a commercial question the authority of the National Court is paramount.

2. But, notwithstanding the agreement between defendants and Adams and Co., the defendants remained liable for the wrongful acts or gross negligence of themselves or their servants, if any such acts there were. The plaintiff's claiming through Adams & Co., and being bound by their agreement the plaintiff's rights in this view of the case, must be tested by those of Adams & Co. But the jury having found that the goods at the time of the loss were in the keeping of a servant of Adams & Co., the defendants are exonerated and there is no ground for a new trial.

CONSTITUTIONALITY OF THE GENERAL RAILROAD ACT OF NEW YORK.

The following is the decision of the Court of Appeals, which lately, in consequence of a blunder, occasioned some little trembling among stockholders, the reporter having casually coupled the prefix *un* with the word *constitutional*.

The Buffalo & New York City Railroad, agt. Braynard.—The Court held the General Railroad Act to be constitutional; and it appearing that in regard to the other defects now complained of the defendants had not previously made any objections before the Commissioners or the Supreme Court, although they had ample opportunity so to do, the objections were to be considered as removed.

RAILROAD EMPLOYEES.

Antony Keary. vs. C. C. & C. R. R. Co.—This case which occupied the District Court at Cleveland Friday and Saturday, was disposed of on Saturday evening. The jury returned a verdict for plaintiff for \$6050. Keary was a brakeman on a gravel train and was injured by a collision. The accident occurred by reason of the negligence of one Loper, who was engineer of the gravel train.

We understand that it is the intention of the railroad company to have the legal questions in the case reviewed by the Supreme Court. In the case of *Stevens vs. the Little Miami railroad company*, 20 Ohio Reports, the Supreme Court of Ohio decided that where a railroad company placed one person in its employ under the direction of another also in its employ, the railroad company was liable for an injury to the person of him placed in the subordinate situation by the negligence of his superior.

Judge Otis, who delivered the charge to the jury in the present case, so directed the jury, who brought in a verdict as above stated. The case in the 20th of Ohio Reports is directly in opposition to decisions in the States of New York, Massachusetts and also to the decisions of the English Courts. In the Ohio case Judge Spaulding dissented from the decision of the majority. And as we have stated it is the intention of the Railroad company to carry the question to the Supreme Court.

Norris' Locomotive Works.

The *Register* in a notice of recent improvements on Bush Hill, Philadelphia, gives the following account of the locomotive works of Messrs. Richard Norris & Son.

Among the manufacturing improvements is that of Messrs. Norris & Son, who have recently enlarged their establishment, until now they occupy a space of upwards of two acres of ground. The different departments of this mammoth locomotive works, are arranged in the best manner and contain facilities for the manufacture of locomotives, far surpassing those of any other establishment in this country or Europe. The steam hammer shop is on the south west corner of Schuylkill Sixth and Hamilton streets and is 104 feet long, and 80 feet wide. It contains two of Nasmyth's Patent Steam Hammers, 9 Smith's fires and a 10 horse power steam engine, which drives the fans for the furnace, as well as the Smith's fires. The iron yard adjoins this, 104 feet long and 40 feet wide. The truck-shop, at the north-east corner of these streets, is 68 feet on Schuylkill Sixth street, and 100 feet on Hamilton street, and the tank-shop adjoining, 30 by 100 feet. This building is also supplied with a 10 horse power steam engine.

The boiler shop extends to Fairview street 80 feet, and is 100 feet long on said street. These three latter occupy the lower story of one large building, while above, the rooms are divided into pattern shops. The completing shop on northwest corner of Hamilton and Schuylkill Sixth streets, is 50 feet by 179, and has stalls for finishing 12 engines. The second floor is occupied as a finish-

ing shop, and the third as a copper shop. An open space, 30 feet wide, extending the whole length, has a railroad, used for moving and loading the engines. Adjoining this is another large building, of the same dimensions, used for purposes similar to those the buildings on the opposite side of the area are used for. Another building on Hamilton street of 200 feet, and on Fairview of 254 feet, accommodates a large stationary engine of 100 horse power, additional smith shops, stables, coal yards, &c.

The principal blacksmith shop is at the northeast corner of Schuylkill Sixth and Fairview streets, 116 feet by 153, and contains 46 smith's fires and 3 trip hammers.

A passage way, 20 feet wide, leads from this apartment into a large yard, which separates the blacksmith's shop from a building three stories high, occupied as a finishing shop, planing-room and wheel shop. This has a front on Schuylkill Sixth street of 166 feet, on Morris street of 153 ft., and extends southward to the blacksmith's shop—the whole occupying a space of 252 feet on Schuylkill Sixth street, and 158 feet on Morris and Fairview streets. In this building has also been placed a stationary engine of 70 horse power, driving all the machinery of both blacksmiths, and finishing shops. The iron and brass foundries, carpenter shops, grindstone, paint and engraving shops, at the southwest corner of Schuylkill Sixth and Morris streets, are contained in a building 70 feet on the former and 103 feet on the latter street, which adjoins the counting-house, drawing-room and store rooms on Schuylkill Sixth street.

The whole number of hands employed in the works of Messrs. Norris & Son is 725. Since the works commenced in 1833, 723 locomotives have been constructed, and during this year 110 will be built. This firm has forwarded to England 24 locomotives, and upwards of 200 for the continent. The establishment is one of the most attractive in the city, and is daily visited by large numbers of citizens and strangers.

Circular of the Cleveland and Toledo Railroad Company.

On the first of September last, two railroad companies, which before that time existed as independent corporations, were consolidated into one company, under the name of the Cleveland and Toledo Railroad Company. This consolidated company took all the property and effects of the two corporations, and assumed all their liabilities.

One of the former companies was known by the name of the Toledo, Norwalk and Cleveland Railroad Company, and the other by the name of the Junction Railroad Company.

The first of these, (viz. the Toledo, Norwalk and Cleveland R. R. Co.,) which is now called the Southern division of the Cleveland and Toledo Railroad Company, commences at the City of Toledo, and passing through Fremont, Norwalk, and several other flourishing towns, terminates at Grafton, where it connects with the Cleveland, Columbus and Cincinnati railroad, about twenty-five miles southwest of Cleveland. From thence, by the way of Cleveland, there is a continuous line of railway to the City of New York. At Toledo it connects with the Michigan Southern Railroad, and thus forms an important link in the great line of railway travel from New York to Chicago, and the country west of that City to the Mississippi river. This road is eighty-seven miles long, and is wholly completed, (unless the bridge at the City of Toledo, across the Maumee river, which is now passed by a steam ferry-boat, ought to be regarded as part of the road.) The bridge is now under construction, and will probably be finished early in the winter. This road through its entire length, was opened for travel about nine months since. Its present receipts are at the rate of about fifty thousand dollars per month, with an almost absolute certainty that they will be very largely increased as soon as the navigation of Lake Erie shall be suspended for the season.

The other (or Junction Railroad, as it was called, and is now named the Northern Division

of the Cleveland and Toledo R. R. Company,) commences at the City of Cleveland, and passing through the town of Elyria, Sandusky City, Maumee, and several other growing towns, terminates at Swanton, where it connects with the Northern Indiana Railroad. This line of road is one hundred and twenty-two miles long. That part of it (sixty miles) which lies between Cleveland and Sandusky City, has recently been finished, and the trains commenced on Monday last to run from Cleveland to Sandusky City, where it connects with the Mad River and Lake Erie railroad, and through it with Cincinnati—thus making through this line a continuous railroad from Cincinnati to New York.

The other part of this road between Sandusky and Swanton is in a state of such forwardness, that the Company's Engineer, on the 18th of this month, reports, that work to the amount of two hundred and sixty-five thousand dollars only remains to be done to complete the remaining sixty-two miles ready for the ballasting. This is exclusive of the bridge at Toledo, which will require an additional expenditure of thirty or thirty-five thousand dollars to finish it.

This last named road, when completed, will, in connection with the Northern Indiana Railroad, form a link in a continued railway from New York to Chicago, as well as from New York to Cincinnati, as already stated. As this road is but just opened, and in part only, a statement of its business cannot be made, and at present rests in opinion only. But any person acquainted with the Western country, and its railroad connections, will by a glance at the map perceive the power and importance of this road, as a link in these great lines of travel.

The united length of these two roads is two hundred and nine miles. The whole estimated cost of the construction of both roads (209 miles), including the machinery on hand at the date of the consolidation, is four millions and a half. These four and a half millions are represented in the following forms: two millions in the stock of the roads, which is paid in full; the remaining two and a half millions are provided for in the bonds of the Company, less than a million of which, are convertible into stock. The Company has sold of these bonds to the amount of \$1,600,000.

Forty per cent. of the receipts of the Company are absorbed by the expenses of working their roads, leaving for net profits sixty per cent. of those receipts. The Company, therefore, in the present partially developed condition of their road, are in the net receipt of thirty thousand dollars per month, or at the rate of three hundred and sixty thousand dollars per annum; which after paying one hundred and seventy-five thousand dollars for interest on two and a half millions of seven per cent. bonds, will leave one hundred and eighty-five thousand dollars of net profits to be divided out to two millions of stock, which is a fraction over nine per cent. per annum.

It may, therefore, from this view, be safely affirmed, that when both lines of the Company's roads shall be finished and developed, the stockholders may count upon dividends of ten per cent. per annum, and leave in addition an accumulating surplus at the disposal of the Corporation.

S. F. VINTON,
President C. & T. R. R. Co.
E. LANE,

Former Pres't Junction R. R. Co.
New York, October 31, 1853.

New York Central Railroad.

The Albany Journal says the Central railroad company are pressing forward their improvements with unceasing vigor. There will soon be a double track the entire distance to Buffalo. By a notice elsewhere, it will be seen that proposals are to be received in a few days for preparing the line between Syracuse and Rochester for a second rail.

Ruttan's Ventilating Car.

Rochester, Oct. 26, 1853.

EDITOR OF RAILROAD JOURNAL.—

Dear Sir: I notice in your paper of October 15th a letter from Mr. H. Ruttan referring to the removal of his Ventillation from a car belonging to the Central railroad company. The writer calls on me to give the reason for so doing.

The Ventillation seemed to answer a very good purpose in cool weather, but, after the intense heat came on in July there was great complaint from passengers, and I ordered the apparatus removed. In explanation I would say that to introduce the apparatus, and make room for the large stove the seats of the car were elevated I think eight inches, this brought the heads of the passengers above the lower casement of the sash and the heat could not be endured. It is proper to say further that the car was one built several years ago and was not as high between joints as those built the last two or three years. This was another reason of the intense heat, the seats were also, rather poorly put in, and some of them had got loose.

The foregoing were the principle reasons for removing the apparatus.

Yours Respectfully,
CARLOS DUTTON.

South Western Railroad of Indiana.

At a recent meeting of the directors of this company, held at Point Commerce, John H. Bradley was elected President, Jacob P. Chapman Secretary, and Thomas E. Hadley a director.

The Board accepted the proposition of Messrs. Story, Fuller, Chaffer, and others, to build and equip the road, and for the erection of iron works and manufacture of iron upon the line.

It was announced that sufficient means had been subscribed to grade and bridge the road, and the location of the work for construction was ordered immediately.

A contract with the Ohio River and Wabash railroad company, (from Vincennes to Paducah,) for a connection of interests in through transportation was also ratified.

Evansville, Indianapolis and Cleveland Railroad.

Our types made us say in a recent number that the above road had been located permanently by the board at its recent session, on a straight line from Union to Cleveland, and from Evansville down the Valley of White River. We should have said that the road had been permanently located on a straight line from Union to Indianapolis, and down the valley of White river, on the east side of the river from Indianapolis to Evansville. The distance from Indianapolis to Evansville, we learn will be 150 miles. The distance from Evansville to Louisville by the Ohio river is 213 miles, and from Louisville to Indianapolis one hundred and twenty miles, the construction of this road will therefore make the travelled distance from Evansville to Indianapolis, one hundred and fifty miles, against three hundred and thirty-three miles by the present travelled route. The president and vice-president of this road were east last week, and we learn made the necessary monetary arrangements for the time being, for the prosecution of the work.

Notice to Contractors.



NORTHERN CROSS RAIL ROAD, STATE OF ILLINOIS.

MAPS, profiles and estimates for the work necessary to the complete construction of the NORTHERN CROSS RAILROAD, will be exhibited at the office of the company in Quincy, on and after the 13th November and proposals for the work are requested from contractors.

Meanwhile, as the preliminary lines have been taced on the ground which do not vary materially from the probable location, and as the work will be let by quantities with equitable provision for changes, it is entirely practicable by visiting the ground to obtain all the most important information necessary to regulate the bids.

The route extends from Quincy on the Mississippi river, in a direction east and north to the dividing ridge between the Mississippi and Illinois rivers, thence about midway between those rivers to Galesburg, in Knox county, a distance of about 100 miles. At Galesburg it connects with other roads leading to Chicago. The country through which it passes is well settled, healthy and fertile, unsurpassed in these latter particulars on this continent, and, as it is contemplated to build a road of the first class common in the United States, the work will be of sufficient magnitude to make the execution desirable including at many place good work for the winter.

The line will be divided into sections, and proposals will be received for the construction of one or more up to the whole road, the propositions being made for the grading and masonry-bridges, ties and sills—and complete construction, (excepting depots,) all in a single contract or separately for each item.

Contracts will not be closed before the 25th November, nor sooner thereafter than to afford sufficient time to decide on the most satisfactory offer.

Specifications for the mode of construction, with maps and profiles of the preliminary lines, may always be seen at the office in Quincy.

Quincy, Illinois, September 26th, 1853.

N. BUSHNELL, President.

W. H. SIDELL, Chief Engineer.

NOTE. From the point where the line to Galesburg leaves its easterly direction to turn northerly, an extension is projected to the Illinois river. This will be about 30 miles long, terminating opposite Meredosia, where it connects with the main line of The Great Western Road, which extends from thence east through the capitals of Illinois, Indiana, Ohio, &c. The construction of this part of the line was begun as a State work about fifteen years ago, and abandoned after a large sum had been expended in the graduation. The company will be ready to negotiate for its construction as a separate work.

The Hamilton Car Company,

ARE prepared to Contract for the Manufacture to order Rail Road Cars of every description, such as Passenger, Baggage, Freight, Dumping and Hand Cars, &c. &c.

Having ample facilities for Manufacturing at the lowest rates, and being supplied with Eastern Mechanics in every department under the Superintendence of H. P. Lanckton, who has had charge of T. W. Watson's well known establishment at Springfield Mass., for the last six years, we can guarantee ours to be equal in style and quality to any manufactured.

Car Manufacturers and Rail Road Companies Supplied with Car wheels from the most approved patterns at the lowest prices. Castings of all kinds for Cars, Rail Road Bridges, &c. made to order at short notice.

Orders Respectfully Solicited.

Address, HENRY SIZER, Agent,
Cincinnati Ohio.

Office 596 Fifth Street, Cincinnati, at Rail Road Depot Building.

HENRY TANNER vs. the Hudson River Railroad Company. Circuit Court of the United States for the Northern District of New York.

THIS was a suit brought by the plaintiff for an alleged infringement of letters patent granted to him as assignee of the inventors, L. H. THOMPSON and A. G. BACHELDER: 'for an improved Railroad Brake', by the use on the said road of brakes made on plans, alleged to have been invented by NEHEMIAH HODGE and also by F. A. STEPHENS and purchased by the said defendants, from the said Hodge & Stephens and also for use of the plan as patented to said Tanner.

The suit was noticed for trial at the October term of 1853, and put over the term by the motion of Defendant's Counsel by paying the costs of the term.

And thereafter the Defendant's Counsel made overtures for a settlement which resulted in the defendant's acknowledging the validity of plaintiff's patent, the infringement of the said patent by the use of double acting brakes on the plan of the said patents, and the Company paying to the said plaintiff for the right to use the said invention and for the withdrawal of said suit the sum of ONE THOUSAND DOLLARS and costs.

Having read the above I do certify to the correctness of the statements therein contained.

October 26th, 1853.

THOMAS M. NORTH,
Secretary and Attorney of the
Hudson River R. R. Co.

New York, October 26th, 1853.

This is to certify that I was of Counsel for the plaintiff in the above entitled cause, that the suit was brought for the recovery of damages from the Hudson River Railroad Company for the use on their cars of brakes, made on the plans described in the patents granted to Charles B. Turner on the 14th, of Nov. 1848, to Nehemiah Hodge on the 2d, of October 1849, and to F. A. Stephens on the 25th, of November 1851. That in preparing for the trial of the above entitled cause I made a careful examination of all the facts, given in the notice of defence and became satisfied that Thompson and Bachelder, from whom Tanner derived title, were the original and first inventors of the Double acting Brake covered by the plaintiff's patent and that the Brakes of Turner, of Hodge, and of Stephens are infringements of the said Tanner's patent.

CHS. M. KELLER.

Notice to Contractors.

SEALD PROPOSALS will be received at the Office of the Mississippi Central Railroad Company in Holly Springs, Mississippi until one o'clock & P. M., of Tuesday the 16th day of November next, for the Clearing, Grubbing, Grading, Bridging and Furnishing Cross-ties for about 22 miles of said road between the Town of Holly Springs and the State line of Tennessee.

Plans and specifications may be seen at Holly Springs after the 10th day of November next.

Proposals will be received at Granada Mississippi until one o'clock P. M. of Wednesday the 7th day of December next for the same description of work and materials on the line of road between Water Valley and Granada being about 30 miles. Plans specifications may be seen at Granada after the 1st. day of December next.

Proposals will also be received at Canton Mississippi until one o'clock A. M. of Wednesday the 14th of December next for the same description of work and materials between Canton and the Big Black river, a distance of about 12 miles.

Plans and specifications may be seen at Canton after December 10th.

The work will be divided into sections of one mile each and proposals will be received for each item separately or for the whole work on one or more sections.

The right of rejecting such proposals as are not satisfactory is reserved.

HEALY, HOLMAN, SIMS & CO.
Holly Springs Mississippi.

October 10th 1853.

A Valuable Farm in Illinois for Sale.

SITUATED in the Village of Seward's Point in Montgomery County 7 1/2 miles North of Hillsborough, about 36 South of Springfield the Capital of the State, about 18 West of the Illinois Great Central Railroad, about 4 or 5 North of the Allon & Terre Haute Railroad and about 18 miles West of the intersection of the two, containing 80 acres of rich prairie land.

Apply by letter or in person to

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No. 15 South Second str. Williamsburgh.

India-Rubber Railroad Car Springs, etc.

THE UNITED STATES CAR SPRING COMPANY, having completed their new Factory, are manufacturing and furnishing to Railroad Companies, and Car Builders, RUBBER SPRINGS of the best quality, on the most favorable terms.

Also, McMiller's superior WHITE HOSE, not only for Railroads, but all other purposes, and of any size or thickness required.

Aug. 10, 1853. 3m Office No. 25 Cliff street, New York.

Mr. Wm. Naish,

OF NEWPORT, MONMOUTHSHIRE,

INSPECTOR of Rails, begs most respectfully to acquaint Importers of rails, Engineers and others connected with the railroads of America, that he still continues to execute orders of inspection throughout the various districts of South Wales and adjacent Iron Works, and confidently refers to the satisfaction which his supervision has given during the last ten years, to exporters of rails and others as below named as a proof of the fidelity, carefulness and promptitude of his inspections.

BARING, BROTHERS, London.

PALMER, McKELLOP, DENT & Co. Do.

LEWIS HOPE, Esq., Do.

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COLLMAN & GLOTFORT, London.

JAMES SPENCE, Esq., Liverpool.

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4t 43

Railroad Iron.

TWO THOUSAND TONS Erie Pattern, 58 lbs. to the yard, already shipped, and expected here soon—for sale by
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To Railroad Companies.

COLLINS' PATENT
VENTILATORS,
FOR

Ventilating all kinds of
PUBLIC AND PRIVATE BUILDINGS
Railroad Cars, Depots, etc.

THE Subscribers would invite the attention of the public to the above celebrated Patent Ventilator. This Ventilator is the best one now known of, for giving a pure air in rooms, and ejecting all foul air. It has been adopted by all the principal Railroad Companies and Car Factories, and is extensively used for private dwellings, and for the cure of smoky Chimneys cannot be excelled. Manufactured and for sale by

BAKER & WILLIAMS,
No. 406 Market st., Girard Row,
Sole Agents for Pennsylvania.

CERTIFICATES.

Engineer Department P. R. R., Altoona, Feb. 8, 1853.
This is to certify that Messrs. BAKER & WILLIAMS, of 406 Market st., Philadelphia, have furnished a large number of Collins' Patent Galvanized Iron Ventilators for the P. R. R. Co., and that they have given every satisfaction, acting fully as represented. I consider them as a necessary appendage to an Engine House. We have them in use thirteen inches, and two feet diameter, acting equally well. So well satisfied am I of their usefulness, that the Engine Houses we are about building will be supplied with them at every point where a draft is necessary to free building of smoke.

STRIKLAND KNEASS,
Principal Assistant Engineer P. R. R. Co.

Engineer Depart. P. R. R. Co., Pittsburgh, May 12, 1853.

Messrs. BAKER & WILLIAMS,
Dear Sirs—The 23 Collins' Patent Ventilators furnished by you for the Engine House at this place, have been in use several months and their merits have been fully tested and have given most perfect satisfaction; being constructed on true principles of Ventilation, and the workmanship is of a substantial and superior character. Yours truly,
3m40 OLIVER W. BARNES,
Principal Assistant Engineer P. R. R. Co.

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED IN 1831.

PUBLISHED WEEKLY BY J. H. SCHULTZ & CO., AT NO. 9 SPRUCE ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. IX., No. 47.]

SATURDAY, NOVEMBER 19, 1853.

[WHOLE No. 918, VOL. XXVI.]

The Mechanical Engineering department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., NO. 9 SPRUCE ST.

Saturday, November 19, 1853.

ENTERED according to Act of Congress, in the year 1853, by EDWIN F. JOHNSON, in the Clerk's Office of the District Court of Connecticut.

Railroad to the Pacific--Northern Route.

Its General Character, Relative Merits, etc.

By EDWIN F. JOHNSON, C. E.

(Continued from Page 726.)

CLIMATE, SOIL AND PRODUCTIONS.

The portions of the States of Illinois and Wisconsin through which the proposed route passes are perhaps unsurpassed in fertility of soil and healthfulness of climate by any other region of equal extent in the United States.

The former is now too well known to need any especial notice in this place. As it respects the latter, the fact of an increase in its population of nearly half a million of souls in the last ten years, and the unexampled advance in the value of real estate within its limits, is evidence that in all the essentials which serve to render it a desirable habitation for man, it is not excelled by any other of the States of the Union.

In addition to its capabilities as an agricultural region, its south-western portion is rich in the ore of lead to a degree unparalleled; more than forty millions of pounds being now sent to market annually; the business of mining being still in its infancy,

only waiting the influx of capital and the facilities of communication, now in progress, to be greatly augmented.

The northern portion is also equally rich in copper and iron, and also in timber. These valuable resources, combined with its salubrious climate, and exceedingly advantageous position, being bounded by the navigable waters of the Mississippi on one side, and by those of Lake Michigan on the other, and Lake Superior on the north, give assurance that Wisconsin is destined soon to occupy a position in the rank of the most populous and influential States of the Union.

The territory of Minnesota through which the proposed route passes from its eastern to its western limits, and in which is located the branch to Lake Superior, although situated to the north and west of Wisconsin, with its surface more elevated above the level of the sea, possesses for the most part a fertile soil, capable of yielding largely under proper culture, and has also a very healthful climate. It has, moreover, a bountiful supply of timber in its eastern and north-eastern portions, and is doubtless rich in copper, and is in all respects well adapted for the purposes of a residence for man, and has from the great similarity of its climate and character of its productions justly received the appellation of the *New England of the West*.

The mean elevation of its surface above the level of the sea is about 1200 or 1300 feet; the highest ground within its limits being that of the Coteau du Missouri, over which the line of the proposed road passes, and which, as stated, is from 2000 to 2300 feet above the sea, forming there the highest or culminating point, as already stated, in the great plain which stretches from the Gulf of Mexico to Hudson's Bay. This highest ground has only one-half the elevation of the prairie plains at the base of the mountains about the sources of the Platte and Arkansas, a difference in its effect on temperature equivalent to eight degrees of latitude.

Of the capabilities of Minnesota as an agricultural region, a very correct idea can be formed from the statements of those who have explored it and resided within its limits.

Its central portion is represented by Nicolet as "a most beautiful tract of land diversified by hills,

dales, wood-lands and lakes, the latter abounding in fish."

From the most elevated points "grand views are presented." "There can be no doubt" he states, "that in future times this region will be the summer resort of the wealthy of the land." The valley watered by the Tehansansan or Jones river is described as an "immense prairie, deemed by travellers, perhaps, the most beautiful within the territory of the United States."

The valley of the St. Peters presents "a level country interrupted by moderate undulations of the surface and beautified by intervening prairie, tracts of wood-land, and lakes." The river "has gently sloping borders divided into natural terraces, covered by a luxuriant grassy sward."

The valley of the Mississippi from the Falls of St. Anthony is "wide, with river banks of moderate elevation, forming a retreating succession of terraces, delightful to the view," ornamented with a variety of timber.

Farther up about the *Hauteurs des terres* "the forests are more varied and the surface is variegated with a great number of lakes."

The valley of Red river has already been described, and its beauty and fertility noticed. The portion lying west of the James and Red rivers and embracing the vast plateau of the Coteau du Missouri has already been described as destitute of trees. This is probably owing mainly to the elevation of its surface, the comparatively limited supply of rains and the absence of streams of sufficient size to check the advance of the fires which sweep annually over all the wild prairies of the west. It is this cause, more than any other, which has denuded them of their timber, and prevented its growth, since, wherever the fires have been prevented by the improvements which have been made in fencing off portions for cultivation, a spontaneous and vigorous growth of timber succeeds. It is, therefore, not unreasonable to suppose that in time, there may be in all the fertile portions of the prairie plains of the west a fair supply of timber, both for ornament and use.

Capt. Jona. Carver, who, more than eighty years ago, spent three years on the Upper Mississippi, gives substantially the same account of the country as Nicolet. He states that "the river St. Pierre flows through a most delightful country

abounding in all the necessities of life. At a little distance from the river are eminences from which you have views that cannot be exceeded," a country which promised, in his opinion, at some future period "to be an inexhaustible source of riches to that people who shall be so happy as to possess it."

In looking abroad over the vast and fertile region before him he seems to have been deeply and justly impressed in regard to its future destiny, for we find him indulging in the following remarks:

"To what power or authority this new world will become dependent after it has arisen from its present uncultivated state, time alone can discover, but as the seat of empire from time immemorial has been gradually progressing towards the west, there is no doubt, but that mighty kingdoms will emerge from these wildernesses, and stately palaces, and solemn temples with gilded spires reaching to the skies, supplant the Indian huts whose only decorations are barbarous trophies of vanquished enemies."

Col. Long, who explored the region from the upper Missouri to the Red river of the north in 1822 and 1823, states that at Pembina, one of the Selkirk villages situated on the Red river in the latitude of the northern boundary of Minnesota, "agriculture is attended with success, wheat, barley, millet, pulse, potatoes, and other culinary roots" are cultivated.

Gov. Simpson in his journal of a tour to the Pacific already referred to, in speaking of the valley of the Red river at Fort Garry, 80 miles north of Pembina, describes it as being, on the west side of the river, one vast prairie, and on the other side as wooded with birch, oak, elm, and pine. That the soil yields forty bushels of wheat to the acre, and even after being cultivated twenty years yields 15 to 25 bushels per acre.

He describes the summers "the same as in Canada though not quite so long." "Cattle maintain themselves in the settlements seven months, and are maintained five months." He says also that the shores of the Lake of the Woods are fertile "bringing in maize to perfection."

Sir John Richardson states that the vegetation in the valley of Red river, 1000 to 1200 feet above the level of the sea, is similar to what it is in the State of New Hampshire at the same elevation. The difference in latitude of these two portions of the country being not less than about five degrees equal to 350 miles nearly in distance.

Schoolcraft informs us that "corn is a profitable crop at Red Lake (which is situated north of the Hauteurs des terres,) and has for many years been furnished in considerable quantities from this lake to the posts on the Upper Mississippi, and even as far east as Fond du Lac." The specimens of grains, etc., from Minnesota now on exhibition at the Crystal Palace in New York, are very conclusive evidence of the agricultural capabilities of the portions of the territory under cultivation.

In respect to climate, all the authorities concur in stating that Minnesota and the region west to the mountains possess in general a very pure atmosphere, dry and bracing, remarkably salubrious, and a temperature, although at times tending somewhat to extremes, is not on the whole unfavorable to the growth and maturity of both animals and vegetables.

Although as a general rule the average annual temperature of places upon the earth's surface diminishes as the distance from the Equator or latitude increases, this relation is frequently varied by local and other causes, such as proximity to mountains, and to the sea or large bodies of water; the elevation above the ocean level, the direction of the prevailing winds, and character and temperature of the surface over which they pass.

The mean annual temperature of places on our Atlantic coast is known to be eight or ten degrees lower than it is in places in the same latitude upon the western coast of Europe. Paris which is in latitude $48^{\circ} 50'$ N. has the same mean annual temperature with New York City which is in latitude $40^{\circ} 42'$ N.

If a line be drawn from the Atlantic coast westwardly, passing along that part of the surface of the country which has a mean annual temperature of 50° F. it will commence at or near Providence, R.I., thence run south westerly, curving northwardly into the larger valleys, reaching as far as Newburg on the Hudson and Harrisburg or Sunbury on the Susquehanna, and in its southwesterly course rising as it proceeds until it attains an elevation which will carry it across the Alleghanies, thence descending northerly by an irregular line along the western slope of the Alleghanies to Pittsburgh, which is 700 feet above the sea.

From thence through the central portions of Ohio and Indiana to the Illinois line. Thence inclining more to the north, and curving into the Mississippi and Missouri valleys it will cross the latter near the mouth of the Sioux river, from whence it will sweep around to the southwest along the surface of the immense inclined plane which forms the western slope of the Mississippi valley, rising as it proceeds, to some point where its elevation is high enough, and the Rocky Mountains are low enough to allow it to pass over on to their western slope. Thence by a very irregular line caused by the deep valleys and high mountain ranges, which are found west of the main range of mountains, in a northwesterly direction, probably by the valley of Lewis River and thence to the Pacific at a point, a little north of the latitude of 49° .

If the line of temperature of 45° F. be traced in like manner, it will be seen to commence at a point on the coast east of Boston, thence southwesterly by a similar line to that above described, curving further up the valleys of the Connecticut and the Hudson, reaching to Fort Edward on the latter; thence passing along the north slope of the valley of the Mohawk, across to the valley of Lake Ontario, and along the east and north sides of that lake. From thence across the Canadian peninsula to Lake Huron and across that lake, the State of Michigan and Lake Michigan to Green Bay in Wisconsin.

From Green Bay it curves to the South in its passage to the Falls of St. Anthony, on the Mississippi where it crosses that river. Thence it takes a south-west course curving again somewhat to the North in passing the Missouri and thence along the western slope of the Missouri and Mississippi valleys at a higher elevation than the line first named of about 1600 feet.

To the south of the line thus described is an isolated portion or zone of the Appalachian chain of mountains which has a maximum temperature

of 45° , a feature in which this line differs from the one first described.

If the isothermal line of 40° be traced, it will be found to differ very widely in places in position from the line of 45° . It will commence near the head of the Bay of Fundy, thence south westerly passing south of St. Johns N. B. From thence it will be deflected successively to the South by the mountains of Maine, New Hampshire and Vermont, to the valley of Lake Champlain. Thence along the western slope of the Green Mountains northerly, crossing the valley of the St. Lawrence in Canada and thence westerly along the valley of the Ottawa, north of Lake Huron and near to the north shore of Lake Superior. Thence to the North and East of Rainy Lake and the Lake of the Woods, to the south end of Lake Winnipeg. Thence westerly across the prairie plains of the Saskatchewan, passing to the north of the south branch of that river, and curving around to the south as it approaches the elevated country near the Rocky Mountains, at the sources of the Missouri, where if not elevated enough to pass through the depression which there exists in the mountain chain, it will take an easterly course, doubling the Wind river or Black Mountains, and like the lines already described, will go on south increasing in elevation until it finds some opening about 1700 feet higher than the last, through which it can enter the valley of the Del Norte or Colorado, and thence ultimately into that of the Columbia.

The three lines of temperature above described, will be found all of them to terminate on the Pacific shore to the north of the national boundary, the mean annual temperature at the mouth of the Columbia having been ascertained, by observations to be about 55° , while that of Puget sound is but little different, a temperature as mild as that of Baltimore on the Atlantic, and said to be more equable, so great is the difference and so much milder is the climate on the Pacific than it is on the Atlantic coast.

These isothermal lines or lines of equal temperature will exhibit more irregularities west than east of the Rocky Mountains, owing to the number and elevation of the mountain ranges into which the surface of the country is broken, and will present more isolated districts or zones differing in temperature from other districts lying either to the north or to the south.

A correct chart exhibiting these lines of uniform temperature would be a very interesting addition to the stock of geographical knowledge, a desideratum which cannot be fully realized until observations have been sufficiently multiplied for the purpose.

To return now to Minnesota.

The mean annual temperature of Fort Snelling, by a series of observations, as already stated, has been ascertained to be 45° . This is the temperature nearly of Portsmouth N. H., of Windsor Vt. and of Oxford and Cherry Valley, New York.

On the *Haut terres* of the Mississippi, at Itasca Lake, the most elevated of the many crystal sheets of water, that gem that portion of the State, M. Nicolet found the mean temperature to be $43\frac{1}{2}^{\circ}$ F. and he says that, "having taken great pains in determining the temperature I have a right to believe that it represents pretty accurately the mean annual temperature of the country under examination."

This is the mean temperature of Burlington, Vermont, where the elevation above the sea is only 346 feet, and is three degrees milder than the temperature of Williamstown Vt., which has the same elevation above the sea as Itasca Lake.

From this it is inferred that the mean annual temperature of Minnesota is no lower and is in all respects equally favorable with Vermont. Of the character and capacity of the latter as an agricultural region there is of course no doubt, and there should be none in respect to Minnesota. For the growing of grains, and for grazing it will be found to be surpassed by but few other States in the Union.

The temperature at the sources of the Mississippi as ascertained by M. Nicolet is in accordance with the temperature of other places lower down in the Mississippi valley. At Baton Rouge for instance in lat. $30^{\circ} 28' N.$ the mean temperature is $65^{\circ} 10' F.$ At St. Louis lat. $38^{\circ} 36' N.$ it is $53^{\circ} 50' F.$ the elevation above the sea 400 feet, and at Itasca Lake lat. $47^{\circ} 14' N.$ elevation 1575 feet above the sea, it is as stated, $43\frac{1}{2}^{\circ} F.$ equal to about $44'$ of latitude or 50 miles nearly along the slope of the valley for each degree of temperature.

Seymour, in his "Sketches of Minnesota," informs us that "early frosts in the latitude of St. Anthony appear to be uncommon. Frosts seldom occur before the 15th to 20th September, or first of October." He names a gentleman now a resident of Minnesota, formerly from Galena, Illinois, who was "delighted with the climate and thought it superior to Northern Illinois, as it was not subject to sudden changes." He states that he has heard "the same views expressed by many settlers in Minnesota who formerly resided some four or five degrees further south." He says also that "the climate is well adapted to corn, wheat, barley, oats, pulse, etc.," and that "the potatoes are of a quality superior to those raised in the Middle States." That "many farmers say their cattle have a dry coat in winter and suffer less from cold than in a warmer climate," and that cattle ran at large the preceding winter in lat. $46^{\circ} N.$ and were in a thriving condition in the spring."

Mr. Schoolcraft in a more recent work than the one already referred to, reaffirms his previous statements. He says that "the *Zea Mays* is raised in great perfection in the valley of the Red river and of great lake Winnipeg, which is north-west of the Mississippi. In the settlements of Lord Selkirk the grain crops are unfailing." "Indian corn which cannot be cultivated at Sault Ste. Marie in lat. $46\frac{1}{2}^{\circ} N.$ is raised by the Indians annually, and ripens early in August at the very sources of the Mississippi, and at Red lake north of them. The latter point is but a few seconds south of latitude $49^{\circ} N.$ "

"It is certain," he states, "that the extreme upper Mississippi escapes those icy winds from Hudsons and Baffins bays which are often felt during the Spring months in Northern Michigan and Northern Wisconsin."

M. Nicolet states that, of all the Indian nations visited by him "the Chippeways inhabiting the country about the sources of the Mississippi, are decidedly the most favored. Besides their natural resources of fish, wild rice and maple sugar, with the addition of abundance of game, the climate is found to be well adapted to the culture of

Corn, wheat, barley, oats and pulse. The potato is of a superior quality to that of the middle states of the Union."

More has been said upon the temperature and climate of Minnesota for the reason that whatever character it possesses in this respect has an important bearing upon the estimate to be formed of the climate of that portion of the proposed route embraced in the valley of the Upper Missouri, and included within the limits of what is still designated as the Missouri territory. This region, or the portion of it through which the proposed route passes, is in the same latitude with the *Haut terres* of Minnesota, lying in a direction from them nearly due west.

Pursuing this line to the Pacific it meets the coast where the mean temperature is 55° or $11\frac{1}{2}^{\circ}$ higher than at the *Haut terres* of Minnesota, an amount considerably greater than is due to any difference in elevation compared with the sea level; from 300 to 350 feet of elevation causing a difference in the mean temperature of one degree.

With no local causes to influence the temperature, it would be very proper to assume a gradual amelioration in proceeding westward from the *Haut terres*, particularly after leaving the Coteau du Missouri. Owing, however, to the gradual increase in the elevation of the country in part, and in part to the nearer approach to the mountains, an average of 41° for the region in question, corresponding to the temperature of St. Johns in N. Brunswick, or Halifax, N. S., is believed to be a very fair estimate. Lewis and Clark who wintered at the Mandan village, do not represent the weather as being on the whole severe, although at times extremely cold. They state that the "Rickarees cultivate Indian corn, or maize, beans, pumpkins, water melons, squashes, and a species of tobacco peculiar to themselves," productions similar to those raised in the valleys of New England. On the 22d Oct. a party of Sioux arrived with "no other covering but a piece of cloth or skin about the middle." Cold weather set in the last of November and on the 7th December the river was closed by ice. During the latter part of December the weather was moderate. It was cold again from the 3d to the 14th of January. After that moderate and pleasant to the breaking up of the ice in the river on the 26th of March. On the first of April was a heavy fall of rain noticed as the first of any consequence which had fallen since the 15th of October. The deer, the elk and the buffalo were found on the prairies during the whole winter. On the 18th of February 59 of these animals were killed, their condition of course not as good as in a more favorable season, but the fact that they are able to subsist on the open prairies, is indicative of a very mild climate for so high a latitude.

Gov. Simpson in describing the productions at Fort Carleton on the Saskatchewan river lat. $52^{\circ} 51' N.$ 600 miles west of Red river, and 1100 feet above the sea, says that "the country in the vicinity produces potatoes and other vegetables. Wheat succeeds sometimes but is often destroyed by the frosts of Autumn." At Edmonton, lat. $54^{\circ} N.$ on the same river near to the Rocky mountains and to the lofty peaks of Mounts Brown and Hooker, he states that "potatoes, turnips, and other hardy vegetables are grown, but the wheat is destroyed by the early frosts."

He informs us also that the buffalo are "incredibly numerous" in that region, and that in 1829 he "saw ten thousand mired in a single ford of the Saskatchewan."

This region is over four hundred miles to the north of the route proposed for the Pacific railroad, a difference as great as that between the cities of New York and Quebec.

At Fort Union at the mouth of the Yellowstone, where there is a post of the American Fur Company, the productions of the soil do not differ much from those at the Mandan villages. A gentleman residing in Missouri relates on the authority of one of the partners of the American Fur Company that "the Missouri at that place freezes over about the first of December, and opens about the middle of March. The upper Missouri among the Blackfeet being sheltered by the mountains, opens a little earlier, and the winter in that section is somewhat milder. With regard to the vegetables it depends very much upon the character of the season whether regular or wet or dry. Success depends upon this. Sometimes they have two months without rain, and then long spells of rain. The Indians cultivate a little of what is called the six weeks or Canadian corn, and also some of the garden vegetables. The soil varies, some of it is excellent, especially in the valleys; but on the plains there is but little soil. The grass is burned over twice a year, and remains green under the snow, and the cattle are not sheltered or fed, but dig away the snow and the cattle feed themselves.—The winters are probably about the same as in Northern New York. Were the fires kept out the timber would grow as on our Western Prairies."

The descriptions above given, including that of Lewis and Clark of the country about the Upper Missouri do not differ from that of Catlin, who spent some time at the mouth of the Yellowstone, and at the Mandan villages.

The character of the vegetation of the Upper Missouri, as described by Lewis and Clark and others, is evidence of its suitability for agriculture. Even in close proximity to the mountains, the climate does not appear to be so rigorous as to prevent its being an excellent grazing country. On the plain, above the Great Falls, in the vicinity of Medicine river, where the soil is represented as more thin and gravelly, the grass was nine inches in height, and the cactus was in bloom; berries of various kinds were abundant and the buffalo were numerous.

Following up the main river, three hundred miles from the Falls, the grass upon the river bottoms was one and a half to two feet in height. Gooseberries, service berries and several varieties of currants were abundant all along the river. A species of flax was likewise seen, and the sunflower also, and this vegetable was observed to flourish at least one hundred and sixty miles nearer to the highest and snow-capped portions of the Rocky mountains, than it is proposed to approach them by the railroad.

Further to the north, between the two branches of the Saskatchewan, Father De Smet says that the country adjacent to the mountains is "extremely fertile, abounding in forests, plains, prairies, lakes and streams. Forests of pine, cypress, etc., occupy a large portion of it, covering the declivities of the mountains, and branches of the river.

The country is capable of supporting a large population, and the soil is suitable for the produce of

barley, corn, potatoes and beans, which grow here as well as in the more southern countries. An active and enterprising population are destined to fill this spacious void, and flocks and herds will graze on the beautiful meadows and plains of this extensive region."

The extract from the journal of Capt. Lewis, already given, confirmed by the statements of Sergeant Gass, relating to the Pass from Clarks river to the Missouri, when carefully examined, must produce conviction of its entire practicability for the purposes of a railroad, and that the temperature or climate cannot in any portion of it be much more severe or intolerable than is experienced during the winter season on some of the mountain passes, where railways are now uninterruptedly conveying passengers and freight in the northern portions of New York, Vermont and New Hampshire.

On entering the valley of Clarks river, we find a region where there is a rich vegetation. It was here that wild horses were seen by Captain Lewis, and they were represented by the Indians to be numerous. The region is now known by the name of the "Horse Plain," and it is here that the Mission Station of St. Mary is situated.

All accounts agree in stating that this valley is well timbered. Bradford represents the river as flowing through "extensive and fertile vallies and level plains."

Mr. Schoolcraft in a recent communication to the public respecting this portion of the Great Valley of the Columbia, describes it under the new name of "*El Hara*" as well timbered, with a productive soil, a favorable climate and capable of supporting a large population.

This also is the character given of it in Irving's *Astoria*.

Although elevated on the average twenty-five hundred feet above the level of the sea, in lat. 47° to 48° N., it has not a very rigorous climate. A series of observations continued through 3 years at Lapwai, in Middle Oregon, lat. 46° 27' N., long. 118° W., gives for the mean annual temperature at that place 53½° F.

Fort Colville is in the same valley in lat. 48° 37' N. The distance and difference of elevation being both taken into account, will make the mean temperature of Fort Colville about 48°, the same as Albany or Troy in New York, and give for the mean temperature of the Clarks river valley about 44°, the same nearly as Green Bay, Wisconsin, Cherry Valley, N. Y., or Dover, N. H.

Com. Wilkes, states that Lake Kalispel is 36 miles long and 8 wide. The country around is rich and beautiful, covered above and below with pines and spruces, with occasional spots of rich bottom land. At the forks 50 miles above, according to Farnham, is a post of the Hudson's Bay Company. He states that "a rich and beautiful country spreads off from Lake Kalispel in all directions," and that the "*ridges*" which separate the sources of the Clarks river from those of the Missouri and Saskatchewan, "are said to be *easy to pass*."

The Mission Station of St. Marys, already spoken of, is situated in the upper part of the Valley of Clarks River, on the main south branch, which Father De Smet calls the St. Marys, for the reason that the north branch, which passes through Flathead lake, being the longest, is properly the main

river. This latter, he says, is a beautiful stream, flowing through a "delightful valley" of 100 miles in extent north of Flathead Lake.

The soil of St. Marys he states "yields abundant crops of wheat, oats and potatoes. The rich prairie is capable of supporting thousands of cattle. St. Marys, or Bitterroot Valley, two hundred miles in extent, is one of the finest in the mountains. In the cultivation of the soil irrigation is necessary in consequence of the long summer drought that prevails, commencing in April and ending only in October."

"This difficulty, however, if the country should ever be thickly settled can be easily obviated as the whole region is well supplied with numerous streams and rivulets. These remarks apply also to the vallies contiguous to the St. Marys. The streams contain abundance of fish especially trout."

The Mission Station of St. Ignatius is situated on the north side of Clarks river, thirty to forty miles from its mouth, just above the portion which is "obstructed by insurmountable Falls and Rapids." It stands on a "beautiful prairie of three miles in extent, surrounded by cedar and pine."

Between Clarks river and the Spokane, and leading towards Colville, is a "beautiful valley, agreeably diversified by plains and forests." The upper portion of the Spokane valley is of a similar character, the trees attaining an immense size, but lower down it is denuded of timber, a character which appertains to the high plains of the Columbia, which spread off south towards the Lewis river.

The air of this whole region is pure and bracing and the climate excellent. In all the upper portion of the Columbia Valley it has the same character. The soil is good, though in some places light, and "the declivities of the mountains are studded with inexhaustible forests, in which the larch tree, pine of different species, cedar and cypress abound."

Joseph Dunn who was some time in the service of the Hudson's Bay Company states that "the country of the Flatheads presents a pleasing diversity of woods and plains, valleys and mountains, lakes and rivers, and is well stocked with deer, mountain sheep, beavers, otters, martins, wolves, lynxes, etc., wild fowl and fish, besides esculent roots, so that they have abundant means of subsistence and clothing, and of traffic as well." From the mouth of the Yellowstone, as far west as the Columbia, the country is now possessed mainly by three very numerous and powerful tribes of Indians, the Crows, the Blackfeet, and the Flatheads, as they are commonly called, although not entitled to that name from any custom they have of flattening the head which is practiced by some tribes nearer to the Pacific. The Crows occupy the country drained by the Yellowstone and its tributaries. The Blackfeet that of the Upper Missouri, extending across to the Saskatchewan, and the Flatheads the valley of Clarks river, and country adjacent to the north and south. These tribes may properly be considered as among the first, if not the very first of the tribes of North America. Their persons are finely formed, they possess great intelligence and practice many of the virtues of civilised life. They live in a country and a climate which they consider delightful, where game of all kinds abounds, and where the great-

est ills they suffer are those consequent upon their inter-tribal feuds, and contact with the Whites, or rather with that portion of the Whites who with more than savage appetites for what is vicious and base, flee the limits of civilization, and inflict by their example and otherwise, upon the untutored Indians, an amount of evil the magnitude of which cannot easily be computed.

The fact that the tribes named possess the character above described is evidence of the favorable soil and climate and great productiveness of the region of country which they inhabit, and of its capabilities for the development of animal life, and for sustaining a large population.

At Fort Colville as stated by Wilkes "wheat is the grain most cultivated, being considered more profitable than oats, barley or rye. Indian Corn (*Zea mays*) succeeds here admirably."

Gov. Simpson who crossed the Rocky Mountains as already stated some distance north of the national boundary, describes the country along the Kootenais and across to the Kalispel lake as densely wooded, the forests in many places intricate and difficult to penetrate. On the *Grand que'te* branch of the Kootenais he saw "sixteen sorts of pine" and "twelve different kinds of berries." Soon after passing the main summit to the west side of the mountains he saw "recent marks of the *buffalo*, antelope, sheep, moose, and red deer."

From the Kootenais river he passed across to Clarks river valley, which he describes as "well covered with excellent timber, bounded on either side by a line of lofty hills, soil rich, and stream navigable, except at one cascade where a portage was necessary."

He informs us that the wheat grown at Fort Colville "weighs 63 to 65 lbs. per bushel. Maize flourishes but does not ripen until September. Peas, potatoes, oats, barley, melons, cucumbers, etc., are plentiful. The winter is many degrees milder than in the same parallel on the eastern side of the mountains." "Amongst the wild flowers in the neighborhood of the Fort are the helianthus, lupin, monks hood, and the fuschia, in great abundance." This latter particularly denotes a mild climate, and for ground elevated over 2000 feet above the sea and near to the latitude of 49° N. shows a great difference in the temperature between the eastern and western side of the continent. From the crops raised in the vicinity of Fort Colville most of the posts of the Hudson's Bay Company at the north get their supplies.

At the Chaudiere Falls salmon are taken in great numbers, as they are in all parts of the Columbia below. They ascend quite to the head of the main river, and will form a very important source of wealth to the country. This remark also applies to the waters connected with the straits of De Fuca, which are very richly stored with fish of all kinds.

From Fort Colville to Okanagan in the valley of the Columbia, the climate and temperature does not vary much from that of Fort Colville, the causes which have influence on both being nearly the same; but between Fort Okanagan and the Pacific are the Cascade Mountains, a serrated range about 5000 feet high with three or four conical peaks in the territory of Washington, rising to more than double that height. These latter only are covered with perpetual snow, the remainder of the

range is clothed with a dense forest to its summit. There are, doubtless, some twenty or thirty miles of the estimated entire distance of 130 miles, where the temperature is too low and the snows lie too long to render it available for other than grazing or pastoral purposes. This range although having, undoubtedly, a milder temperature than is found in the Rocky Mountains at the same elevation, and in the same latitude, yet from its exposed position is subject to snows of greater depth and to frequent and greater changes of temperature.

The mean annual temperature of 48° F. which is found in the valley of the Columbia at an elevation of 2000 feet above the sea undoubtedly prevails in the same latitude on the west side of the Cascade range at an elevation of nearly 3000 feet, and from that limit to the shore of the ocean goes on increasing until it reaches 53° or 55° as ascertained approximately by Com. Wilkes.

In the region between the Cascade Mountains and the Pacific, a temperature prevails which is even milder than in the same latitude on the western coast of Europe. Paris, which is situated in latitude 48° 50' N. has a mean annual temperature of only 51 6-10° F. or four or five degrees less than is found in the same latitude in the waters of the straits of De Fuca. Proceeding northward along the Pacific coast the same relatively mild climate continues. Wheat, barley, potatoes, and turnips are all grown at Fort Alexandria, two hundred and fifty miles north of the national boundary.

In Irving's Astoria the mildness and equability of the climate west of the Rocky Mountains in the valley of the Columbia is noticed as remarkable. "The rigorous winters and sultry summers and all the capricious inequalities of temperature prevalent on the Atlantic side of the mountains are but little felt on their western declivities." The weather for most of the year is "serene and delightful."

Of the country between the Cascade Mountains and the Pacific, a gentleman, Mr. Hall, thus speaks, after a five years residence at Puget Sound. "Having travelled through every State in the Union, I can safely aver that I have never found a place to equal that delightful country for healthfulness, beauty of scenery, and unvarying temperature." He represents the land in general as well adapted for cultivation and pasturage. Potatoes of a dry and excellent quality, onions, cabbages, turnips, carrots, parsnips, wheat and oats, all produce abundantly. "The pasturage generally is good throughout the year and no farmer thinks of providing fodder for his stock during the winter. The winters are very mild and snow is rarely more than an inch deep." He also states that "the timber, of which there is a great abundance, particularly cedar and fir, is of the largest and finest quality. In short the purity of the air, the luxuriant prairies, the forests of noble tall trees on every side, the never failing springs of purest water, the innumerable lakes, an almost profuse abundance of game and fish, all conspire to render it one of the most delightful countries of the world."

The soil near the sea coast is described in Irving's Astoria, as inferior in character generally compared with that of the interior, and in consequence, the vegetation of the latter is more abundant. "The face of the country is kept fresh and

verdant by nightly dews and occasionally by the humid fogs in the morning, the latter not prejudicial to health."

Com. Wilkes, Gov. Simpson, and other writers concur in giving to the region in question a remarkably favorable character in respect to soil and climate. Near the coast the soil is not so productive, but in the interior where the surface is free from rock, it is of an excellent quality in most places. The latter remarks, particularly of the country lying to the north of the national boundary on the sea-coast, that the region in which is included the southern part of Vancouver's Island "is well adapted for colonization, for in addition to a tolerable soil and a moderate climate, it possesses excellent harbors and abundance of timber. It will, doubtless, become in time the most valuable section of the whole coast above California."

South of Puget Sound for sixty miles he describes the country as "watered by many streams and lakes" and composed of belts of wood and plains well adapted to tillage and pasturage. The belts of wood composed of stately cedars and pines, many rising without a branch or bend to a height of 150 feet."

The extraordinary magnitude attained by the forest trees in that part of the coast of the Pacific has been remarked by all who have visited that region. This remarkable growth does not appear to be confined altogether to the country along the coast.

Mr. Douglass, a distinguished botanist, while passing up the valley of the Columbia to Fort Colville, saw many kinds of pines, some of which by measurement were thirty feet in circumference and "several which had been levelled to the ground by the storms were 145 feet long, with wood perfectly clear and strong."

Of the excellence of the climate and general good character of the soil of this portion of the country, no more will at present be said. Both are beyond question well adapted for the successful development of both vegetable and animal life.

MINERALS.

Of the mineral resources of the country through, or near which, the proposed northern railroad route to the Pacific passes, enough is known from such partial and imperfect explorations as have been made to make it certain that they are quite valuable and extensive.

The route after leaving Illinois passes along the eastern and north-eastern margin of the great lead district of south-western Wisconsin with which a connection is in progress by means of the Southern Wisconsin railroad from Janesville, a district which now sends annually to market forty to fifty millions of pounds of metal.

On the Upper Mississippi it passes near to the western extremity of the great copper region of Lake Superior with which it will be a convenient mode of communication, by branches leading northwardly up the valleys of the tributaries of the Mississippi, which have their sources in the region in question. From discoveries recently made it is probable that silver will also become one of the valuable productions of this region, and it is now known that in middle and northern Wisconsin there are ores of iron in various localities, some of which are now worked producing metal of an excellent quality.

Farther on in north-western Minnesota, extend-

ing into Canada, salt lakes and springs are known to abound. These lie to the West of what is called Devil's Lake on the map, the waters of which are slightly brackish. This salt region lies a little to the north of the line of the proposed road and covers a space not less probably than 6000 square miles within the limits of the United States, and judging from the account of Gov. Simpson covers even more space north of the national boundary. South of this line within our own borders there are places where the mineral is said to be found in great purity. From the remarks which follow it will be seen that there is probably in close proximity to this region, a supply of bituminous coal.

Should this opinion prove correct, salt will in time be manufactured here, in great amount, and become an important article of commerce. From this source, owing to the probable cheapness of its manufacture and facilities of communication most of the population of the Mississippi and Missouri valleys, as far down as the mouth of the latter, and of the Upper St. Lawrence valley, as far as Lake Erie, will most probably in time receive their supply of salt. The district which embraces the salt lakes and springs is elevated about 2000 feet above the level of the sea, and the atmosphere is in general very pure and dry, circumstances favorable to the cheap manufacture of salt whether produced by evaporation in the open air, or by the artificial means in use at most of the salt works in the country.

Within the limits of Minnesota, to the south of the proposed route are the famed red pipe stone quarries, which promise to be of considerable value in the arts. The locality of this stone nearest to the route is in Wisconsin at the head of a branch of Chippeway river which joins the Mississippi near the lower end of Lake Pepin.

Between Fort Clark or Fort Mandan and the Falls of the Missouri mineral coal of the bituminous character has been observed in various places where it appears in the banks of the Missouri river. Lewis and Clark testify to this and their evidence is confirmed by Culbertson. Wyeth informs us that the banks of the Yellowstone below the Bighorn "are in many places precipitous with strata of bituminous coal" and Capt. Bonneville mentions a mountain on the Powder river branch of the Yellowstone as "abounding in anthracite coal." The existence of coal near the surface and directly on the proposed route, extending through ten degrees of longitude is a consideration of great importance.

This immense coal field in all probability underlies the entire plain which stretches northwardly from the Missouri to the Saskatchewan and Assiniboine rivers, including the region occupied by the salt lakes and springs above described.

Gov. Simpson speaks of coal as appearing in the banks of the Saskatchewan river at Fort Edmonton, a point very near the eastern base of the Rocky mountains. Father De Smet saw coal on the banks of Red Deer River. He also saw "fountains which produce sulphur", and saltpetre he states "is found in abundance, and iron is not scarce in many parts of the mountains."

Lewis and Clark observed limestone at several points in the valley of the Upper Missouri. It extends in places far into the passes of the mountains. They observed it on the upper part of

Jefferson river. They also saw sandstone, on the Missouri, and granite was met with in the mountains. Materials of this character appear therefore to be abundant for construction, and being situated near the river, which is navigable for so many hundreds of miles, can be transported along the valley at no very great cost.

The existence of limestone in large quantities and spread over a great extent of surface, is evidence of the probability that localities may hereafter be found, producing marble of a quality suited to various purposes in the arts.

Robt. Stuart, who passed in 1812 from the Tetons easterly along the mountains which separate the waters of the Upper Missouri from those of the Columbia and Colorado, describes a species of clay, found in the mountains, "from which the Indians make pots, jars, &c. It is very fine and light, of a brown color spotted with yellow; vessels manufactured of it are said to impart a pleasant smell and flavor to any liquids." He states that "these mountains abound also with mineral earths or chalks of various colors, especially two kinds of ochre, one a pale the other a bright red, like vermilion, much used by the Indians in painting their bodies."

Of the region embraced between the Falls of the Missouri and the western slope of the Cascade Mountains, but little is as yet known as to its mineralogical character.

That it does contain minerals of value is to be inferred from information derived from various sources, and from the change in the geological formation of the country already alluded to as taking place at the 48th parallel of latitude.

Thornton informs as on the authority of Dr. Whitman, the Missionary who was murdered by the Indians at Wallawalla, that the latter "frequently brought copper from a place north of his station," and that judging from the information which he obtained "its locality was somewhere south of the 49th parallel." He also states that "Mr. Ricard, the late Attorney General of the Hawaiian islands, brought to Oregon a specimen of platina obtained from a Flathead Indian, which metal the savage affirmed was very abundant at one locality in the country of his nation, but he refused to indicate more particularly."

A Mr. Lattee who was, during many years, in the service of the Hudson's Bay Company informed Mr. Thornton that "the Indians often brought platina and silver ore to the trading post from the northern extremity of Queen Charlotte's sound" in lat. 54° N. which seems to confirm the truth of the previous statement of the existence of those metals in the vicinity of the latitude of 49. Father De Smet saw "large pieces of coal along the Kootanie river, and was convinced that it could be abundantly procured." He found also "great quantities of lead on the surface of the earth", and from its appearance he believed that "it contained a mixture of silver."

Sir John Richardson in speaking of the probable mineral resources of the region embraced in the British possessions to the north of the latitude of 49° states that "it would be true economy for the imperial government, or the Hudson's Bay Company who are the virtual sovereigns of the territory, to ascertain without delay the mineral treasures which it contains. I have little doubt," he says, "of many of the accessible districts

abounding in metallic wealth of far greater value than all the returns which the fur trade can ever yield."

Mr. Dunn states that near the Pacific towards the latitude of 54° N. "great quantities of virgin copper are found, some of it is worked by the natives into a kind of shield about two feet and a half long, and one foot broad."

West of the Cascade Mountains bituminous coal is now known to exist in large quantities in the vicinity of the waters of the straits of De Fuca. According to Thornton an "inexhaustible supply of a good quality may be had upon Vancouver's Island. It lies near the surface, is gotten out with crow bars and is near to a good anchorage." Dunn describes it to be of an "excellent quality, running in extensive fields and even in clumpy mounds, and most easily worked all along that part of the country."

Coal has since been discovered in the vicinity of Puget Sound, and to the East of Admiralty Inlet, and a company has been formed for mining it within the territory of Washington.

The "Oregonian" represents it as abounding in a range of hills, and that it appears in several places in the banks of the Inlets "within a few yards of deep water making the shipping of it quite easy."

This appears to be the southern limit, or very near it, of the bituminous coal on the coast within our own territories, none having as yet been discovered south of that point. Of its value in view of the immense steam marine which in a few years will be traversing the waters of the Pacific from the straits of De Fuca, an adequate idea can now scarcely be formed. Its existence there to the extent now indicated will be of greater importance to the future prosperity of the territory in which it is situated than mines of gold and silver, and if to this be added the wonderful resources of the country in its forests of timber and general character of the soil, it gives to the territory of Washington the means of creating and maintaining a commercial and military marine not possessed by any other section of equal extent within our own limits on the coast of the Pacific.

To be continued.

Manassas Gap Railroad.

The stockholders of this road have authorized the President and Directors to borrow the sum of \$600,000; and to issue the bonds of the company in payment thereof, with interest, at the rate of six per cent., payable semi-annually, the said bonds to be paid in twenty years or in less time. Authority is also given to execute such mortgage on the property of the company, as may be necessary to secure the payment of the amount borrowed.

Baltimore and Ohio Railroad.

We learn that the Board of Directors of this company, in pursuance of the project of laying a second track between Baltimore and Piedmont, have decided to apply to the City Council to endorse the bonds of the company, for five millions of dollars. Application will also be made to the Mayor to call an extra session of the Council to act on the subject, in order that an early decision may be arrived at. It will be necessary to obtain an act from the Legislature, authorising the city to endorse the bonds, before the transaction can be perfected.

Journal of Railroad Law.

HOW FAR IS A CHARTER TO CONSTRUCT A RAILWAY COMPULSORY.

The English decisions upon this subject, do not accord, the Court of Exchequer having overruled that of the Queen's Bench.

The act for constructing the York & N. Midland railroad recited that "the formation of the Company praying to be incorporated promised to be beneficial to the community, and that the Company were willing to complete the proposed railway," and they were therefore duly empowered to take by compulsion, if necessary, the lands requisite for their purposes and invested with the ordinary powers conferred in such cases.

The Queen's Bench granted a Mandamus in order to compel the Company to finish the construction as originally contemplated.

But as above stated, the Court of Exchequer has reversed this decision, and declared that no duty to complete the work was imposed upon the Company by the Charter; there being nothing in the subject matter to which the Charter relates, nor anything in the language thereof which indicates any intention on the part of the Legislature of imposing on the Company the obligation of constructing the track in question.

Nor did the Court think that the merits of the question were in any degree affected by the fact that a portion of the road was already completed. *The York and North Midland Railway Co. vs. the Queen. Ellis & Blackburn England. Common Law R. p. 72.*

So too an Act in reference to the Great Western Railway Company, provided that defendant "might make a line to R. and if they should think fit, a branch &c.," and also that "the line to R. should commence at a certain place named and terminate at another" and that "the branch if constructed should be made" in a certain way.

This Act was also held by the Court of Exchequer not to be binding on the Railway Company. *Great Western Railway Co. vs. the Queen. 1, Ellis & B. 874.*

CUSTOM OF TRADE IN RELATION TO COMMON CARRIERS.

A common carrier who received on a canal boat a lot of household furniture to be carried from Lycoming County to Philadelphia, met with an accident by which the goods were partially damaged. No express contract had been made in the case. He undertook upon an action for damages brought by the owner of the goods to show that by the usage of the business he was not liable for damage by fire, navigation or unavoidable accident.

The Supreme Court disallowed this defense and observed that they looked very jealously at customs which trench upon common law. And that a local usage in order to be available must be ancient, uniform, and notorious.

If however the owner of the goods damaged had been shown to be guilty of fraud towards the carrier as by concealing the value of the articles entrusted to him, or by deluding him in regard to them by his own assumed carelessness of manners, or by making fraudulent representations concerning their value, then the carrier would have been discharged from his liability.—*Cone vs. Heisly, 19 Pennsylvania Reports 243.*

Distribution of Weight of Locomotives.

The greatest improvement in the railway has been its *development*; by extending its capacity through the best use of the principles already in possession. The duty of a railway is to assist the transportation of loads, and these are now heavier, more frequent, and must be moved at higher speeds than formerly. To do this, heavier, and more numerous engines and cars must be run at far greater speeds, and their effect is to hasten the wear of the road; involving now in a month, what would have once been the depreciation of a year. It is true that the road has been improved, but not in the same ratio of advancement as the machinery. The rails have been strengthened by which the relative loss of iron, taken up in renewals, has been reduced. The character of the road bed has been improved and the bearings of the rails increased in number and permanence. But the laws of pressure and resistance have not and cannot be changed. So long as the demands of modern transportation could be met without *extravagant*, although large, wear of rail, so long there was profit in accommodating these demands.

The wear of rail must proceed from one or all of the three causes named, viz: greater *weight*, greater *speed* and greater *frequency* of application of both these elements. Iron is however known to yield soonest to the heaviest loads or strongest percussions. Hence the increased *weight* of modern railway trains, aggravated very much by their increased *speed*, is the *principal*, and the greater frequency of their application the *secondary* cause of the rapid depreciation of rail on lines which are worked to their full capacity. A bar may be crushed by a single load of twenty tons, while the passage over it of ten loads of two tons each may produce little effect. Upon this principle, which seems equally well grounded in reason and supported in practice, it is the *distribution of the weight* of railway equipments which is of the first importance to the engineer, inasmuch as it is the only point which the circumstances of our transportation will allow of being controlled, while the relation of weight to the resistance of rails is the most important of any of the influences which tend to produce depreciation.

The greatest increase of weight has been made in the locomotive, and it is from this part of the equipment that the greatest amount of deflection and percussion of rail is suffered. The loaded cars seldom carries over two tons on each wheel, and on no road will the *average* tonnage be as much: the engine has wheels carrying from four to five and a half tons each, and upon which the load is constant. It is hard to estimate the precise influence of these loads, as the engine combines causes of unsteadiness by which the cars are unaffected. Experience however, some years since, declared the influence of the engine and tender to produce *one half* the wear of rail produced by the whole train. Engineers of high standing deduced and adopted this estimate at a time when locomotives had not reached their maximum of weight. In our own country this allowance was adopted as early as in 1846, by John B. Jervis, Horatio Allen, and others, in reporting to the New York Legislature upon the location of certain parts of the New York and Erie railroad.

Look for a moment at the number of engine and tender wheels compared with those of the train,

The engine say, has four wheels through which power is applied, and through which a weight of four tons is brought upon each bearing which they have on the rail. There are four truck wheels, carrying an equal load. The train suitable for such an engine would run on as many as two hundred wheels. The wear from the sixteen wheels of the engine and tender is equal to that from a train having twelve times the number, and the whole weight of which is perhaps nine times as much. And the *tender*, having half the number of wheels, and forming more than one third of the whole weight of engine and tender, is nothing in effect but one of the cars, and could not certainly produce one fourth nor one fifth of the wear produced by engine and tender both. It would seem as if the *limit* of economical resistance of the rails was under a pressure of not much over four tons. And yet many roads are contracting for equipments of engines wherein this limit will be passed. The broad gauge lines, which necessarily involve extra weight of equipments, and which certainly ought to afford the best inducement for *distribution* rather than *concentration* of weight, are equipped and equipping with engines of nearly unprecedented weight, and resting upon but eight points. Baldwin's great "pushers," as the Lanesboro grade engines are called, weigh 74,000 lbs. each, 44,000 lbs. of which are upon four wheels, giving five and a half tons on a single point. But as these engines were designed for special service at a difficult part of the line, this may not, perhaps, be wondered at. With a hearty disregard of the effects of a general equipment of such engines there are however, a large number now under contract which promise to involve even greater concentration of weight than these.

The relief for these excessive pressures, is in a *distribution* of the same adhesive weight between a greater number of connected driving wheels. The coupled drivers, where only two pairs of wheels were combined, was, we believe, original with Norris, of Philadelphia, but by whoever claimed, the plan was one great feature of American motive power. Those roads which operate their motive power the most economically have extended this principle to three and often to four pairs of drivers.

The great difference in the motive power of this country and that of England may be said to be chiefly in the disposition of weight. *There*, it has been sought to avoid the coupled drivers and to obtain the necessary adhesion by the concentration of sufficient weight on a single pair of wheels. *There* they have the same weight carried on two driving and two trailing wheels as on our four driving wheels, but the weight is unequally distributed in one case and equally divided in the other. The heavy English express engines have generally received an allowance of ten or twelve tons weight to a single pair of driving wheels, where our engines of a similar class have eight.

It is the results of this injudicious use of rail that have sustained the complaints of the English shareholders about "depreciation of permanent way," and the same cause has been the ground for advocating "lighter engines," which, other things being equal, are certainly *less* economical than heavy engines, provided the latter have a reasonable distribution of weight.

Freight engines require the most adhesive weight, as their traction, or steam power is greater from having smaller wheels, and consequently greater leverage in the application of power, and from the fact that by running slower they work at a somewhat higher pressure in the cylinder. Hence, for the proper adaptation of freight engines the principle of the distribution of weight is especially applicable, and upon many of our roads, of the highest importance.

Here we see the difference of our own and the English system. The English engine, weighing twenty-five or twenty-six tons, is distributed on six wheels having a wheel-base of twelve or thirteen feet. The American engine of the same weight has ten wheels, covering twenty to twenty-three feet, while the *truck* makes the extra length a matter of trifling importance in passing around curves.

The American engine runs over a light rail, and draws trains equal to its full power; the track does not require excessive repairs, nor is its depreciation regarded as the chief source of expenditure. The English engine deflects the heaviest rail, increases the resistance, disturbs the ballasting at successive points, and eventually loosens and unsettles the whole superstructure of the road.

English engineers, we perceive, are beginning, however, to appreciate the advantage of distribution. Many of their recent passenger engines have coupled drivers. Daniel Gooch, of the Great Western railway, has built engines very much after the American model, having both coupled drivers and a truck. Messrs. Kitson, Thompson, and Hewitson, of Leeds, have also adopted the coupled drivers.

Cincinnati Western Railroad.

The President of this road, Hon. Caleb B. Smith has just made his first annual report.

This road is to run from Cincinnati to New Castle, a distance of seventy-three miles. At that place it will form running connections with the road now making through Logansport to Chicago. The entire cost of the road, including depot buildings, right of way, rolling stock, &c., is estimated at \$2,500,000.

The stock subscribed for the construction of the road up to this time amounts to \$1,724,839 12. Of this amount there is payable in cash \$693,081 57 payable in real estate, \$1,031,757 55.

The real estate subscribed has been conveyed to the Company, and is now held by unincumbered titles in fee simple. The most of it is situated in Cincinnati and the immediate vicinity, and has been taken by the Company at such prices that the larger portion of it, which has already been sold, has produced to the Company an advance upon its cost.

A portion of the real estate has been conveyed in trust to Hon. John McLean and G. Taylor, Esq., to be held by them as a security for bonds issued by the Company, payable in ten years. The present value of the property, embraced in the deed of trust exceeds the amount of the bonds by more than twenty per cent. The interest upon the bonds will be paid every six months by the Company, and thus, while the property transferred in trust, as a security for their payment, will be constantly increasing in value, and the security thus becoming better, the debt secured by it will be diminishing.

There has been expended on the road for construction, engineering, and right of way, the sum of \$162,625 50.

The graduation upon ten or twelve miles of the line has been completed, and the work on the heaviest sections is progressing in a satisfactory manner. Thirteen hundred tons of iron rails have

been purchased of an approved pattern, weighing sixty pounds to the yard.

American Railroad Journal.

Saturday, November 10, 1853.

Share and Money Market.

There has been a decided improvement in the Share and Money market since our last report. Money is much easier for all purposes and is readily obtained on call. The Bank statement for the week (which we give below) is regarded as very favorable.

	Nov. 5.	Nov. 12.
Loans.....	\$83,092,630	\$82,802,409
Specie.....	11,771,880	12,823,575
Circulation.....	9,492,158	9,287,629
Deposits.....	55,599,977	56,201,107

On the 6th of August last the loans were \$97,899,617, and the amount of specie held by the bankers was \$9,510,465. The curtailments which the above statements show, could not have been made at any period without producing the severest pressure and great distress.

The earnings of our railroads for October continue to show a large increase over the same month for the past year. Below we give the list as far as received.

	1853.	1852.
New York and Erie.....	\$552,995	\$376,833
Hudson River.....	153,258	104,309
Michigan Southern.....	220,804	131,737
Ohio and Penn.....	84,039	44,741
Milwaukee and Miss.....	41,377	15,072
R. Island and Chicago.....	67,097	new.
N. York and New Haven.....	93,252	64,524
Norwich and Worcester.....	31,867	24,886
Cincinnati, Hamilton and Dayton.....	38,085	30,001
Harlem.....	90,008	70,463
N. Y. Central.....	555,945	416,541
Pennsylvania.....	245,058	144,094
N. Haven & Springfield.....	74,613	40,503
Mich. Central.....	200,163	161,183
Balt. and Ohio.....	290,168	.....
Macon and Western.....	27,317	31,776
Mad River.....	75,048	54,199

The above shows an extraordinary activity in the internal commerce of the country. The increased earnings of our roads are undoubtedly due, to a considerable extent, to the opening of new lines which add very largely to the increase of the old. All the great staples of the country command high prices, which leads to very large movements of merchandise from the interior.

The share market for the week has shown a large advance, although it has fluctuated considerably. The following is a comparative statement of prices on the 9th and 16th instants.

	Nov. 16.	Nov. 9.
Erie.....	79½	74¾
Hudson River.....	69	65½
Harlem.....	56	51½
New York Central.....	113	111
Cumberland Coal Co.....	38½	36
Michigan Southern.....	120	116
Michigan Central.....	109	105½

The rise has been participated in by nearly the whole list of stocks upon the market. The feeling is general, that the period of greatest stringency is passed. It is an encouraging fact, that it does not seem to have effected the great industrial interests of the country, which were never more prosperous, nor in a sounder condition than at the present time. The increased earnings of our

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence... Maine.	150	1,538,100	2,973,700	5,150,278	254,743	113,520	none	82
Androscoggin and Kennebec.. "	55	809,378	1,016,500	2,064,458	140,561	80,053	none	36
Kennebec and Portland..... "	72	952,621	29,80	2,514,067	168,114	100,552	none	45
Port., Saco and Portsmouth.. "	51	1,355,500	123,884	1,459,384	208,669	.....	6	98½
York and Cumberland..... "	20	285,747	311,100	713,605	23,946	11,256	none	—
Boston, Concord and Montreal. N. H.	93	1,619,278	622,200	2,540,217	150,538	79,659	none	35
Concord.....	35	1,485,000	none.	1,485,000	305,805	111,836	8	104
Cheshire.....	54	2,078,625	720,900	3,002,094	287,768	55,266	5	48
Northern.....	82	3,016,634	.....	.....	328,782	163,075	5	47½
Manchester and Lawrence.... "	24	717,543	.....	.....	.....	.....	6½	90
Nashua and Lowell.....	15	600,000	none.	651,214	132,545	51,513	8	109
Portsmouth and Concord.... "	47	.....	.....	1,400,000	.....	.....	none	.....
Sullivan.....	26	.....	.....	673,500	.....	.....	none	21
Connecticut and Passumpsic.. Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	37
Rutland.....	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	25
Vermont Central.....	117	8,500,000	3,500,000	12,000,000	.....	.....	.....	13½
Vermont and Canada.....	47	1,500,000	.....	1,500,000	Leased to the Vt. Cent.	.....	.....	100
Western Vermont.....	51	392,000	700,000	.....	Recently opened.	.....	none	.....
Vermont Valley.....	24	.....	.....	.....	.....	.....	none	.....
Boston and Lowell..... Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7½	94½
Boston and Maine.....	83	4,076,974	150,000	4,092,927	659,001	338,215	7	102½
Boston and Providence..... "	53	3,160,390	390,000	3,546,214	469,656	227,431	6	86½
Boston and Worcester..... "	69	4,500,000	425,000	4,845,967	758,819	331,296	7	101½
Cape Cod branch.....	28	421,295	.....	633,906	60,743	30,056	2½	45
Connecticut River.....	52	1,591,100	193,500	1,801,946	229,004	72,028	5	55
Eastern.....	75	2,850,000	500,000	3,120,391	488,793	241,017	7½	91
Fall River.....	42	1,050,000	none.	1,050,000	229,445	99,589	8	106½
Fitchburg.....	66	3,540,000	112,305	3,623,073	574,674	232,787	6	94
New Bedford and Taunton... "	20	500,000	none.	520,475	164,230	43,950	7½	117
Norfolk County.....	26	547,015	819,743	1,245,927	67,251	23,415	none	60
Old Colony.....	45	1,064,070	282,300	2,293,534	322,213	101,510	none	90
Taunton Branch.....	12	250,000	none.	307,136	137,406	24,399	8	.....
Vermont and Massachusetts.. "	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	13½
Worcester and Nashua.....	45	1,134,000	171,210	1,321,945	162,109	66,900	4½	59½
Western.....	155	5,150,000	5,319,520	9,953,759	1,339,873	683,194	6½	99
Stonington..... R. I.	50	.....	467,700	.....	240,572	110,892	.....	61
Providence and Worcester.. "	40	1,457,500	300,000	1,731,498	253,630	139,514	6	.....
Canal..... Conn.	45	.....	.....	.....	.....	.....	none	.....
Hartford and New Haven.... "	72	2,350,000	800,000	3,150,000	639,529	294,209	10	118½
Housatonic.....	110	.....	.....	2,500,000	329,041	168,902	none	.....
Hartford, Prov. and Fishkill.. "	50	.....	.....	In progress	69,629	.....	none	.....
New London, Wil. and Palmer "	66	558,861	800,000	1,511,111	114,410	.....	.....	.....
New York and New Haven.... "	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	101
Naugatuck.....	62	926,000	440,000	.....	.....	.....	.....	.....
New London and New Haven. "	55	750,500	650,000	1,380,610	Recently opened.	.....	none	45
Norwich and Worcester..... "	54	2,121,110	701,600	2,596,488	267,561	116,965	4½	55
Buffalo and New York City... N. Y.	91	900,000	1,550,000	2,550,500	Recently opened.	.....	none	85
Buffalo, Corning and N. York. "	122	.....	.....	In progress	.....	.....	none	65
Buffalo and State Line..... "	69	879,636	872,000	1,921,270	Recently opened.	.....	.....	130
Canandaigua and Niagara F.. "	50	.....	.....	In progress	.....	.....	.....	.....
Canandaigua and Elmira..... "	47	425,509	582,400	987,627	76,760	39,300	none	68
Cayuga and Susquehanna..... "	35	687,000	400,000	1,070,786	74,241	23,496	none	.....
Erie, (New York and Erie).... "	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	719
Hudson River.....	144	3,740,515	7,046,395	10,527,651	1,063,659	338,783	none	65½
Harlem.....	130	4,725,250	977,463	6,102,935	681,445	324,494	5	56
Long Island.....	95	1,875,148	516,246	2,446,391	205,068	44,070	none	28½
New York Central.....	504	22,858,600	2,111,824	24,974,423	.....	.....	.....	113
Ogdensburgh (Northern).... "	118	1,579,969	2,969,760	5,133,834	480,137	195,847	none	26
Oswego and Syracuse.....	35	350,000	201,500	607,803	90,616	43,609	4	70
Plattsburg and Montreal.... "	23	174,042	131,000	349,775	Recently opened.	.....	none	.....
Rensselaer and Saratoga.... "	25	610,000	25,000	774,495	213,078	96,737	.....	.....
Rutland and Washington.... "	60	850,000	400,000	1,250,000	Recently opened.	.....	.....	.....
Saratoga and Washington.... "	41	899,800	940,000	1,832,045	173,545	135,017	none	30
Troy and Rutland.....	32	237,690	100,000	329,577	Recently opened.	.....	.....	33
Troy and Boston.....	39	430,936	700,000	1,043,357	Recently opened.	.....	none	.....
Watertown and Rome.....	96	1,011,940	650,000	1,693,711	225,152	116,706	8	100
Camden and Amboy..... N. J.	65	1,500,000	.....	4,327,499	1,388,385	478,413	10	145
Morris and Essex.....	45	1,022,420	128,000	1,220,325	149,941	79,252	4	.....
New Jersey.....	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
New Jersey Central.....	63	986,106	1,500,000	2,379,880	260,899	124,740	3½	.....
Cumberland Valley..... Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	.....
Erie and North East.....	20	600,000	.....	750,000	Recently opened.	.....	.....	125
Harrisburgh and Lancaster.. "	36	830,100	713,227	1,702,523	265,927	106,320	8	.....
Philadelphia and Reading.... "	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	77
Philad., Wilmington and Balt. "	98	3,850,000	2,403,276	6,813,839	667,786	383,501	5	76

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equip't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central.....	Penn. 250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	93 1/2
Philadelphia and Trenton.....	" 30	.....	.....	.....	.....	.....	.....	.....
Pennsylvania Coal Co.....	" 47	.....	.....	.....	.....	.....	.....	102 1/2
Baltimore and Ohio.....	Md. 381	9,188,300	9,827,123	19,542,307	1,825,563	615,384	7	58 1/2
Washington branch.....	" 38	1,650,000	.....	1,650,000	348,622	216,237	8	.....
Baltimore and Susquehanna.....	" 57	.....	.....	.....	413,673	152,536	.....	.....
Alexandria and Orange.....	Va. 65	.....	.....	In prog.	.....	.....	.....	.....
Manassas Gap.....	" 27	.....	.....	In prog.	.....	.....	.....	.....
Petersburgh.....	" 64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville.....	" 73	1,372,324	200,000	In prog.	.....	.....	.....	70
Richmond and Petersburg.....	" 22	685,000	.....	1,100,000	122,861	74,113	none	40
Rich. Fred. and Potomac.....	" 76	1,000,000	503,006	1,531,238	254,376	113,256	7	100
South Side.....	" 62	1,357,778	640,000	2,106,467	62,762	.....	.....	.....
Virginia Central.....	" 107	1,400,100	446,036	In prog.	176,485	74,902	none	61
Virginia and Tennessee.....	" 60	3,000,000	1,500,000	In prog.	.....	.....	none	98
Winchester and Potomac.....	" 32	180,000	120,000	416,532	89,776	.....	12	.....
Wilmington and Raleigh.....	N. C. 161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	.....
Charlotte and South Carolina.....	S. C. 110	.....	.....	.....	.....	.....	.....	.....
Greenville and Columbia.....	" 140	1,004,231	300,000	In prog.	.....	.....	.....	.....
South Carolina.....	" 242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester.....	" .....	.....	.....	In prog.	.....	.....	.....	.....
Georgia Central.....	Ga. 191	3,100,000	306,187	3,378,132	945,508	508,625	8	115
Georgia.....	" 211	4,000,000	1,214	.....	934,424	456,468	7 1/2	.....
Macon and Western.....	" 101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee.....	" 71	.....	.....	In prog.	.....	.....	.....	.....
South Western.....	" 50	586,887	150,000	743,525	129,395	71,535	8	.....
Alabama and Tennessee River.....	Ala. 55	.....	.....	In prog.	.....	.....	.....	.....
Memphis and Charleston.....	" 93	776,259	400,000	In prog.	.....	.....	.....	.....
Mobile and Ohio.....	" 33	879,868	.....	In prog.	.....	.....	.....	.....
Montgomery and West Point.....	" 88	628,611	.....	1,330,960	173,542	76,079	8	.....
Southern.....	Miss. 60	.....	.....	.....	.....	.....	.....	.....
East Tennessee and Georgia.....	Tenn. 80	835,000	541,000	In prog.	.....	.....	.....	.....
Nashville and Chattanooga.....	" 125	2,093,814	850,000	In prog.	.....	.....	.....	.....
Covington and Lexington.....	Ky. 38	1,430,150	900,000	In prog.	.....	.....	.....	62 1/2
Frankfort and Lexington.....	" 29	357,218	.....	584,902	87,421	44,250	.....	80
Louisville and Frankfort.....	" 65	.....	.....	.....	.....	.....	.....	.....
Maysville and Lexington.....	" .....	.....	.....	In prog.	.....	.....	.....	.....
Cleveland and Pittsburgh.....	Ohio. 100	1,239,450	1,371,000	2,963,756	194,429	123,306	6	93
Cleveland and Erie.....	" 95	.....	.....	.....	.....	.....	.....	.....
Cleveland and Columbus.....	" 135	3,027,000	408,200	3,655,000	777,793	483,454	12	122
Columbus, Piqua and Indiana.....	" 46	.....	.....	2,000,000	.....	.....	.....	80
Columbus and Lake Erie.....	" 61	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ham. and Dayton.....	" 60	2,100,000	500,000	2,659,653	321,793	200,967	.....	102 1/2
Cincinnati and Marietta.....	" .....	.....	.....	In prog.	.....	.....	.....	72 1/2
Dayton and Western.....	" 40	310,000	550,000	925,000	.....	Recently opened.	.....	80
Dayton and Michigan.....	" 20	.....	.....	In prog.	.....	.....	.....	.....
Eaton and Hamilton.....	" 36	.....	.....	.....	.....	.....	.....	60
Greenville and Miami.....	" 31	.....	.....	.....	.....	.....	.....	.....
Hillsboro.....	" 37	.....	.....	In prog.	.....	.....	.....	.....
Little Miami.....	" 84	2,370,784	.....	2,634,157	526,746	314,670	10	113
Mansfield and Sandusky.....	"	900,000	1,000,000	1,855,000	.....	.....	.....	.....
Mad River and Lake Erie.....	" 167	2,387,200	1,767,000	4,110,148	540,518	113,401	.....	95
Ohio Central.....	" 57	.....	.....	In prog.	.....	.....	.....	90
Ohio and Mississippi.....	" .....	.....	.....	.....	.....	.....	.....	87
Ohio and Pennsylvania.....	" 187	1,750,700	2,450,000	.....	.....	Recently opened.	.....	.....
Ohio and Indiana.....	" .....	.....	.....	In prog.	.....	.....	.....	.....
Scioto and Hocking Valley.....	" .....	.....	.....	.....	.....	.....	.....	.....
Toledo, Norwalk and Cleve'd.....	" 87	552,000	800,000	1,317,140	.....	Recently opened.	.....	.....
Xenia and Columbus.....	" 54	1,092,137	119,500	1,257,714	237,506	135,363	15	116
Evansville and Illinois.....	Ind. 31	.....	.....	In prog.	.....	.....	.....	.....
Indiana Central.....	" .....	.....	.....	.....	.....	.....	.....	80
Indiana Northern.....	" 131	.....	.....	.....	.....	Recently opened.	.....	115
Indianapolis and Bellefontaine.....	" 83	.....	.....	.....	.....	.....	.....	166
Lawrenceburg and Ind.....	" 90	.....	.....	In prog.	.....	.....	.....	05
Lafayette and Indianapolis.....	" 62	.....	.....	.....	.....	Recently opened.	.....	82
Madison and Indianapolis.....	" 88	1,650,000	750,000	2,400,000	516,414	268,075	10	78
Peru and Indianapolis.....	" 40	.....	.....	In prog.	.....	.....	.....	65
Terre Haute and Indianapolis.....	" 72	682,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago.....	Ill. 135	2,400,000	4,000,000	4,600,000	.....	.....	.....	.....
Chicago and Mississippi.....	" .....	.....	.....	.....	.....	.....	.....	136
Illinois Central.....	" .....	.....	.....	.....	.....	.....	.....	100
Galena and Chicago.....	" 92	1,932,361	500,000	In prog.	473,548	286,152	.....	120
Michigan Southern.....	Mich. 315	2,499,410	2,629,000	6,430,246	592,187	293,046	.....	8
Michigan Central.....	" 282	4,000,000	4,067,396	8,614,193	.....	.....	.....	109
Pacific.....	Mo. 38	1,000,000	none	In progress	.....	Recently opened.	.....	.....

railroads are much greater than at any former period.

The Philadelphia Bulletin publishes the following statement of the deposits of American gold at the Mint of the United States, and all the Branch Mints, from the date of the discoveries in California up to July 30, 1853:

DEPOSITS OF CALIFORNIA GOLD AT THE MINTS.

Philadelphia Mint.

1848.....	\$ 44,177 00	1852.....	\$49,821,490 00
1849.....	5,481,439 00	1853 (to	.....
1850.....	31,667,505 00	July 30)	33,080,253 85
1051.....	46,939,367 00	Total.....	\$172,034,231 85

Branch Mints.

Dahlonga. Charlotte. N. Orleans. Total.

1848.....	\$ 1,124	1,124	.....
1849.....	.....	669,921	669,921
1850.....	30,025 00	4,575,567	4,605,592
1851.....	214,072 00	15,111	3,769,682
1852.....	324,931 07	28,361	3,777,784
1853 (to	.....	.....	4,131,076
July 30)	269,607 78	15,399	1,339,208
			1,674,215

Totals.....\$838,635 85 58,872 19,183,286 20,080,794
Add deposits at Philadelphia mint.....\$172,034,231

Total California deposits to July 30, 1853.....\$192,115,025

Subsequent deposits at Philadelphia Mint.

August, 1853.....	\$4,469,000
September,	3,975,000
October.....	4,327,000

Total California deposits to Oct., 1853.....208,886,026

The export for the same period has been \$76,105,207, showing a coinage of \$128,780,000 in excess of the exportations, which amount is now in circulation, or in the banks and sub-treasury.

A Train of Locomotives.

It is but a few years since a train drawn by a locomotive was a novelty in the United States, and yet last evening we saw a train of locomotives upon a track which two years since was not completed. The train came up from Erie, under the direction of Mr. W. Marsh Kasson, junior partner of the firm, W. M. Kasson & Son.

The train was composed of seven locomotives, worth over \$60,000. The *Raritan* was at the head, and furnished the propelling power. The *Niagara* and *Hudson*, for the Mad River and Lake Erie Railroad Company, came next. The *St. Louis* and *Wabash*, for the Terre Haute and Richmond road, followed; "No. 17," for the Chicago and Mississippi road, was next; and "No. 17," for Illinois Central, closed the train.

That same Chicago and Mississippi Railroad is one of the leading thoroughfares of the west. At Joliet it connects with the Chicago and Rock Island Railroad, cutting off a "corner" of one hundred and fifty miles in the main route to St. Louis.

All the triumphs of that Rome which "sat upon her seven hills, and from them ruled the world," were not equal to those which that single locomotive train will accomplish.—*Cleveland Herald*.

Wisconsin Railroad Iron.

The Dodge Co. Iron Company, just organized, with a capital of half a million of dollars, in Dodge County, Wisconsin, are about going largely into the manufacture of railroad iron, so that Wisconsin will no longer need to go abroad for her rails. They have contracted for the erection of twenty blast furnaces and one large rolling mill to be devoted exclusively to railroad iron. The Beloit Journal states that they have already contracted to furnish to the Milwaukee and La Crosse railroad fifty tons of iron per day on and after the first of March next, until the track is laid to Portage City.

Baltimore and Ohio Railroad—Its Policy for the future.

The recent heavy decline in the market value of the stock of this road, shows that the result of its operation since its opening has not equalled public expectation. This want of success, may be referred to several causes; the unfinished condition of the road, incapacitating it for the transaction of a large business; the unfavorable character of the route; the lack of a dense and active population upon its line; the want of railroad connections at its western terminus, and the great delay and expense to which the traveller going to Philadelphia, New York and Boston, is subjected after reaching Baltimore. All these drawbacks have exerted their share of influence, and they have been so far potential as to disappoint the highly raised hopes of the friends of the road, both in regard to its earnings, and the addition it was expected to make to the trade and commerce of Baltimore.

We do not presume that the objectionable grades used are calculated to interfere seriously with a profitable traffic. They are so grouped together as to enable them to be worked in the most economical manner. A greater part of the route traversed is new, and comparatively undeveloped, but capable, in time, of supplying a very large business. The want of western connections is being very rapidly supplied by the construction of a number of roads, centering at Wheeling. At present both passengers and freight have to depend upon the Ohio river as a means of reaching their places of destination.

The imperfect success of the road therefore, may to a certain extent, be referred to causes temporary in their character. For a considerable portion of the year, however, the Ohio river offers the best means of forwarding merchandise to the leading points of consumption, and there is no reason, provided the route be the best between the Atlantic cities and the west, as is claimed, why the road should not immediately enter upon a freight business fully up to its capacity; the returns from which would yield a fair income upon the cost of the road.

In our view of the case the want of success referred to is due partly to the fact that the road has not yet become a part of a great through route between the leading Atlantic cities and the west. That it has not become so, has been owing to a mistaken policy which appears to have prevailed in its management. The Baltimore and Ohio road was proposed, and has been built, chiefly with a view to the promotion of the trade, commerce, and general welfare of Baltimore. The New York and Pennsylvania Works had nearly destroyed the trade between that city and the west, to regain which was one of the leading objects of the road. Its friends went a step further. By showing Baltimore to be nearer to all the leading commercial points in the great valley than either Philadelphia, New York, or Boston, they assumed that, cost of transportation being controlled by lineal distance, Baltimore could command the trade of the great interior basin of the country, as soon as it could be reached by her railroads. This assumption has led to some serious mistakes in the policy of the Baltimore and Ohio Company. They have lost sight of the importance of making their road the most convenient through route between New York, say, and the west. Its managers reasoned in this

manner. "The Baltimore and Ohio, is a Baltimore work, planned and executed for the purpose of promoting the prosperity of that city. If we transport over our road the merchandise purchased in New York, we make it a New York road, and thus surrender one great object of its construction," and although at the present time this company have an arrangement with the Philadelphia, Wilmington and Baltimore road, by which Philadelphia and New York freights are forwarded over it, and the Baltimore and Ohio, to the Ohio river, at the same rate as over the Pennsylvania Central road, this arrangement, we understand gives such dissatisfaction in Baltimore, that the directors of the Baltimore and Ohio road threaten to annul it, for the purpose of rendering it inconvenient for the Western trader to buy his goods in New York, and in the hope of compelling him to make his purchases in the former city. The result is, that Baltimore loses a trade sought to be gained, and the road a very large business, which an illiberal and unwise policy forces upon other routes.

The true policy is exactly opposed to the one which now seems to prevail. It is of a piece with what has too often characterised that of southern communities: an attempt to increase the business of a particular place by throwing impediments in the way of the free movement of persons and property. Till quite recently, the city of Augusta, Georgia, steadily refused to allow any connection to be made between the Georgia and South Carolina roads at that place, but forced all the freights to be trucked from one depot to the other, for the purpose of making a little money in *drayage*, of compelling travellers to make as long a sojourn as possible in the city, and for the purpose of rendering it inconvenient for the cotton planter, or petty trader, to go beyond it to make their purchases. The idea was, that the prosperity of the town could be advanced by such a course. Such a policy would be regarded as an absurdity in all the northern states, where a wider experience has developed juster notions upon such subjects. The better sense has recently triumphed, we are glad to say, even in Augusta. The city council has recently given permission for the building of a bridge over the Savannah river, and the connection of the two roads by a continuous track.

We think the same mistaken notions to which we have adverted, have exerted an influence prejudicial to the best interests of the Baltimore and Ohio railroad. We know that for years they have prevented the Philadelphia, Wilmington and Baltimore railroad from building a bridge over the Susquehanna river. They have exerted a paramount influence over the management of the B. & O. road, the object being not to secure to it the largest possible amount of business, but to render it the most efficient instrument in increasing the business of Baltimore. It is to be expected that the Baltimore merchant should feel some dissatisfaction in seeing the cars on a road which he helped to build for the purpose of enlarging his own business, filled with merchandise purchased in New York; and it is very natural for him to suppose that should the railroad discriminate in favor of merchandise purchased in Baltimore, he could have the sale of the goods purchased in the other cities. He thinks therefore that his interests and those of his fellows should be protected by discriminating charges in his favor; and we understand

that such a policy is very likely to be incorporated into the management of this road.

New York is now the great commercial city of the United States. She has been made so chiefly by her unrivalled system of public works. To a portion of the trade enjoyed by this city Baltimore claims to have a right, by virtue of the superior advantages of the position secured to her by the Baltimore and Ohio railroad. But these claims, only recently put forth, are not recognized, nor is their validity understood. This can only be done by offering them to public inspection, by inducing every Western merchant coming East, to take the route of the Baltimore and Ohio road, to visit that city, to examine its facilities for business, to form acquaintance with its merchants, etc., etc. This kind of acquaintance must precede all business arrangements. Next to the Erie canal, N. York owes her commercial greatness more to the early completion of a line of railroad from Albany to Buffalo, than to any other cause. This line at once became the route east, for every western merchant, wherever might be his business relations. He was thus brought into immediate contact with the New York merchant, a step which gradually led to new business, and the abandonment of the old, till the New York merchants in time found themselves in possession of a trade which had been previously shared by the merchants of all of our leading Atlantic cities. If the merchant of Baltimore would recover a trade he has lost, and secure such additions to it, to which he believes himself entitled, the Baltimore and Ohio railroad must do for him what the Albany and Buffalo line did for New York. He must introduce himself to new customers, by bringing them to him. The Baltimore and Ohio railroad must be made the cheapest, most comfortable, and most expeditious route between all the great eastern cities and the west. In no other manner can the results predicated of it, both in respect to its earnings, and in its influence in promoting the prosperity, and advancing the interests of the city of Baltimore, be realized. Unless the route can be made what we have described, we fear that this great work will disappoint public expectation, and particularly the hopes of those who have labored so many years in its construction.

There is no doubt that the interests of every town or city, having any claims to business resources on the line of any road, are best promoted by the unembarrassed and untaxed movement both of persons and property through it. The people of Albany feel that they are as much benefitted in being able to make the trip to N. Y. in four hours, and at a cost of \$1 50, and in having the through passengers from the west, detained only ten minutes on their way to New York, as do the people of the latter city. By interposing obstacles to the free movement of either, all classes would suffer, even those who might be supposed to profit by them, such as hotel keepers, porters, draymen, etc.; for the reason that the increased movement more than compensates them for what they would gain by interposing delays upon the few. So well understood is the value, to the towns themselves, of rapid and unrestrained movement through them, that in the northern states, when railroad companies have not the power, or the means, to secure uninterrupted connections through them, the cities generally execute the necessary works themselves,

and at great expense. The city of Portland aided at great cost, the connection of the Atlantic and St. Lawrence, and the Portland, Saco and Portsmouth roads, the respective depots of which are on opposite sides of the town. A new line of railroad has recently been constructed through the city of Troy, and partially, if we mistake not, at the expense of the city, for the purpose of enabling the locomotive, with its trains, to pass through it at full speed. It was considered necessary to the progress and welfare of that city, that a new road should be built for the purpose of preventing trade and commerce being drawn off into other channels where no such impediments existed. So of all the numerous cities between Buffalo and Albany. The traveller is whirled through them all nearly at full speed. It is this fact that has built up these cities and made the Central line the greatest route of travel in the U. States, and enables it to hold this travel from rivals having much shorter routes. Were passengers at every large town compelled to "break bulk," and be tumbled into dirty coaches, and jolted along from one side of it to another, this route would sink into one of second rate importance, and the cities themselves, would, we really believe, retrograde, instead of advancing with a rapidity that excites the wonder and admiration of the whole country.

The people of Baltimore assume their proximity to the western States to be a matter of great importance in a commercial point of view. The difference in distance, in favor of that city, between New York and Cincinnati, by way of the Baltimore and Ohio, Parkersburgh, and Cincinnati and Marietta route, over the New York Central, is 150 miles; yet were that route fully opened it would be at the difference of 250 miles the longer, measuring distance by *time*. It now takes just about as long to go from New York to Baltimore, a distance of 186 miles, as from New York to Buffalo, a distance of 444 miles. Here then is 258 miles gained in the first 12 or 15 hours! By the two routes, travellers reach Buffalo and Baltimore in the evening, arriving at each place at about the same time, and *cost* for transportation. At Buffalo the traveller by the northern route has made up the distance against him and gained 100 miles in addition, and is at a point from which he can reach Cincinnati at least 15 hours quicker than a person leaving Baltimore at the same time. The saving effected in *cost* will be fully equal to that in *time*.

The advantage of position about which we have heard so much, is more than neutralized by the superior energy and the liberal policy of her more enterprising neighbors.

The same policy to which we have adverted was the ground for withholding authority from the Philadelphia, Wilmington, and Baltimore railroad, to construct a bridge over the Susquehanna river. It was hoped that the river would constitute a sufficient barrier to prevent the southern and western merchants from going to Philadelphia or New York to trade. This policy seemed to work well enough so long as the line of the old National road continued the great route of travel between the east and the west. The opening of the New York line of railroad at once diverted this travel to the northern routes, so that the immense crowd that formerly passed over the Maryland route soon dwindled to an insignificant

number, affecting seriously the revenues of the Baltimore and Ohio road, then opened to Cumberland. The western merchants on reaching New York found it as inconvenient to go to Baltimore as it was to come from that city to New York. The result was, that owing, to an unwise and illiberal policy which she had cherished so long, the former city lost much of its relative importance and a considerable portion of the trade and travel it once enjoyed.

As Philadelphia, to a certain extent was actuated by a similar idea, and as both were willing to see every obstacle interposed between them and New York, the tendency was to demoralize the tone of railroad management between these and the latter city, from which it has not yet recovered. The roads and their management between New York and Philadelphia are still far behind the average standard for the country. So long as this continues to be the case, the New York routes will continue to command the travel between the east and the west, and both the Baltimore and Ohio, and Pennsylvania roads must lose seriously thereby. On the other hand, were the roads connecting New York with Philadelphia and Baltimore run at the same rate of speed, and the same uniformity, as the Hudson River, there is no doubt that the great mass of trade which now crowds the New York roads would take the more southern and shorter routes. Whether these will secure a prize, which involves the abandonment of a policy so long and so sedulously cherished, but which still is within the grasp of the right kind of enterprise, remains to be seen. The Baltimore and Ohio railroad is more deeply interested in the result than is commonly supposed.

Indianapolis & Cincinnati Railroad.

This road (formerly known as the Lawrenceburgh and Upper Mississippi) was completed on the 29th October, and was formally opened for business on the first instant. Its entire length from Lawrenceburgh to Indianapolis is 89½ miles. From Lawrenceburgh to Cincinnati the distance is about 20, making the *thorough* route between the latter and Indianapolis 110 miles. That portion of the line from Cincinnati to Lawrenceburgh is now made by steamboat. This link will be supplied by the first of January, by the Ohio and Mississippi railroad; so that by that time, the political capital, and the central portions of Indiana will be brought within 5 hours time of the commercial metropolis of the Ohio valley. At present the trip is made in six hours, and with a degree of ease and comfort which makes the traveller quite contented to lose the hour which will be saved when the Ohio & Miss. railroad shall be opened.

The opening of the above road is an important event in the railroad history of Indiana. No greater improvement in locomotion can be imagined than that of bringing Indianapolis and Cincinnati within 6 hours of each other, a journey which a year since could hardly be performed in 24. Indianapolis is now one of the most central points in the railway system of the United States. The road which connects this with the leading point of trade in the Great Valley, must rank among our first class roads.

For the cheap movement of freight, the most important source of business of western roads, the Indianapolis & Cincinnati possesses peculiar facilities. In connection with the river, it will always

be the cheapest route between the above cities, and freights can be taken to and from any of the landings in the latter city, without truckage, or any extra charge. The charge to Lawrenceburgh, for freights coming down the river, is the same as to Cincinnati, a fact which will give the above road a decided superiority over any other route.

The road traverses one of the oldest settled most fertile and best cultivated portions of the west and will form a convenient outlet to the best market, for a number of local lines of roads which it intersects. It has been built, and its financial concerns have been conducted in the most economical manner; the iron and equipment having been purchased when those articles were at the lowest prices. It is fully equipped for a very large business, and under the superintendence of able and experienced parties, who have acquired a good reputation for the successful management of eastern roads. The road opens for business under excellent auspices, and bids fair to become one of the most profitable of our western roads.

Railways and Railway Investments in the West.

The immense sums now invested in railroads in the United States, renders the *value* of these works a matter of the gravest moment. Although the country at large may be the gainer by them to a vastly greater amount than their entire cost, (a point, we believe, conceded on all sides,) there are numerous parties who have contributed largely toward their construction, who cannot be recompensed by the general prosperity which they create, but who are interested in them simply in the capacity of *stockholders*. To such, our roads are successful or not, just in proportion to the dividends they earn, and could not prove *unprofitable* without the most disastrous consequences, the extent of which can only be measured by the utter ruin of vast numbers of individuals and families, who have no other means than the earnings of our railroads for their daily support. The securities of these works too, have become so interwoven in all the operations of business, are made the *bases* of so many transactions, that, should they become comparatively valueless, we do not see how the commercial community could survive the shock which would result, the injurious consequences of which would be heightened and aggravated by the destruction of all confidence in the soundness of human judgment even in ordinary affairs. Correct views of the real value of our railroad investments are, therefore, of the utmost importance, both as a means of allaying apprehension when no cause for alarm exists, or for the purpose of awakening it as a corrective of abuses, or of an unwise or improvident policy, before they shall have gone beyond the reach of remedy.

The *present* is a good time to look at the darker side of the picture. In the stringency in the money market, which prevails, nearly every active business man in the community finds himself involved in one way or another, in our railroad enterprises; finds his own means cut short, or large demands upon them, on their account. No matter whether he may own stock or not. His neighbors do, and their condition affects his own. A person who declaims against railroads finds a hearing now, when he could not have got a single listener a year since. The subjects of railroad in-

vestment can consequently be looked at with a more of impartial judgment, for the reason that a person is to a considerable extent relieved from the influence of sentiment in their favor, which only a few months since was universal, and because all that can be said, or exists, against them, in the present state of affairs, is sure to come out.

A trip west during the month of October gave us a pretty good opportunity of inspecting, personally, the roads of that section of the country, the general system of management which prevailed, of studying the sources, and extent of their traffic; the influence they were exerting in developing the natural wealth of the country, and in this way, creating a business for the future. We had the good fortune of being in company with several very intelligent German gentlemen, among whom were Mr. Schleiden, resident Minister at Washington, from Bremen; Mr. Rucker, charge d'affairs for the city of Hamburg, at Berlin, Prussia; Mr. Delbrueke of Berlin, holding an official position in the Prussian ministry; and Mr. C. G. Eschen, in behalf of the Banking House of Meyer & Stuken, of this city. Their object was precisely the same with our own, which was to form a correct opinion, for themselves, and for the numerous class of German and Continental capitalists interested, as to the value and commercial influence of our roads. As the railroad companies did all in their power to facilitate our objects, and offering to our examination every thing that could aid us in forming a correct idea as to the uses and value of their roads, we had the best possible opportunity of forming correct notions upon the subject of our inquiries. It is needless for us to say that the favorable opinions, which we had previously entertained, and so often expressed, were fully confirmed by what we saw, and were sustained, we believe, by those of the gentlemen named; and we are happy to refer to them in the general confirmation of our own views.

The most prominent fact which strikes attention in travelling over western roads is ease and cheapness with which they can be constructed, and the capacity of the country to supply an abundant traffic. The valley of the Mississippi is one vast plain having a very slight descent in direction of the gulf. Wherever the general surface is broken, the irregularities are due to the action of the water courses. Many of the larger rivers, the Ohio in particular, have cut for themselves deep trenches in the friable soil of the great valley. The principal obstacles to the cheap construction of railroads are consequently found in the vicinity of such rivers. After leaving them, however, the table lands are soon gained, which preserve pretty much the same elevations above tide water, upon similar parallels of latitude; with these all difficulties in the way of construction disappear. The grades of the road accommodate themselves, to the general undulations of the country, and where curves are resorted to, they are used quite as often for the purpose of avoiding the buildings of farmers, or for the purpose of obtaining convenient approaches to the turns and stations on the line, as for any other cause. There is little, or no, rock cutting upon very many of the western roads, and there is frequently so little difference in the choice of routes, that tangents of from 50 to 70 miles are often used with very little additional cost.

The favorable topography of this section of the

country permits the opening of a road for business, with a comparatively small outlay. It frequently happens that roads are in the enjoyment of a very large and profitable traffic, when they are only half finished; even before the road-bed is in suitable condition for use, and before any suitable stations or depots are erected for the comfort and protection of persons and property. It is perhaps on the whole bad policy for many of the western roads to commence running their trains, as soon as they do; but it is hardly possible to resist the pressure, to put them in motion, as soon as the rails are laid. It is impossible to make a good road in the West, out of the soil. To make it passable it must be *McAdamized*. The moment that the fat, unctuous, soil becomes *wet*, travel over the highway is at an end. Consequently the railroad is pressed into service, at the earliest moment for the saving its effects in the carriage of the heavy bulky products of the great valley.

After the western roads are thoroughly built and equipped the difference in their cost, and that of eastern roads will be much less than has been generally supposed. The items of graduation, masonry, bridging and right of way, cost less than those of eastern roads. On the other hand, their iron and equipment cost more, and they generally are compelled to submit to larger discounts on their securities. But as the cost of roads in all parts of the country depend more upon the extent of the business, than upon any other causes, we must expect to see the cost of western roads run up to a high figure, to provide the necessary accommodations and equipments for their enormous traffics. Although fortunately they are able to commence business upon a very small outlay. We do not believe that any road can be built in the West, adapted to a large trade short of about \$30,000 per mile, while the cost of a majority of them will before many years exceed this sum. A low cost road is only compatible where its business is very small.

As a general rule, and we may say almost without exception, the money raised by western companies appears to have been judiciously expended. The facilities for cheap construction compensate for the want of engineering skill. Its place is made good by that practical sense which grows out of a constant necessity, in new countries, of supplying the absence of capital and labor, by expedients of one kind or another, for which our people are so justly celebrated. We know of but one instance of misapplication of funds from their ostensible objects. Parties at a distance, therefore, may be assured, that the means which they have contributed toward the construction of our railroads have been properly expended, a fact, which narrows down the question of the safety of their investments to a single point, that of the *income* of the roads.

In building railroads in a new country, certain results are predicated from well known data, such as the course of trade, the actual movement of persons and property over a particular route, the rates at which they can be transported, &c., &c. In presenting the claims of any scheme to the public, it is usual for the parties having it in charge to accompany it by a statement showing among other things its probable cost and income. It is upon the credit attached to this statement, that the securities of the various companies are

purchased. Now we know of no new southern or western roads recently constructed, the results of whose operations, is not much more favorable than the estimates. The cost of the road is not so much exceeded, as are the excess of earnings over estimates. The stock and bond holders get all and more, than they contracted for. If they have made unsatisfactory bargains, *they*, and not the railroad companies are at fault. The railroads of the entire country have been as profitable, and are as strong, as far as their revenues are concerned, and have as favorable prospect for the future, as was expected, and, on the whole, was claimed by sensible men.

A correct idea of the ability of the newly settled portions of the country to supply a lucrative traffic to the railroads can only be formed from actual observation. It would very naturally be supposed that the labor of the *pioneer* would be unproductive; that supplying his own wants would occupy all his time and attention. Such would be the case in most countries. In the Mississippi we find a soil, the fertility of which years of cropping does not exhaust. Almost the only instrument used is the *plough*. The soil, broken for the first time in the spring, yields an abundant harvest in the fall. As agriculture is the simplest of all forms of labor, combination neither of numbers nor capital is necessary to a very large production. In the culture of wheat or corn, the labor of *two* men will produce one-twentieth as much as the labor of *forty*. A particular district which two years since was without a single inhabitant, may this year furnish a large business to a road. In the West too, the labor of the country settlers is not only as profitably employed, as in the Older States, but furnishes a much larger amount of freight for *exportation*. A single farmer may easily raise with the labor of his own hands, 1000 bushels of grain for sale. As by necessity, he confines himself to *one* staple, he is compelled to purchase from abroad whatever he requires, that his own farm does not supply. Railroads in the new States have therefore a double office. By giving the means for *selling*, they enable the farmer to *purchase*, to the same extent; and as our manufacturing and commercial communities are widely separated from the agricultural districts, a very considerable part of the transportation on our railroads, is a *thorough* movement both of property and persons. This fact adds very largely to the receipts, and is one cause of their extraordinary success.

The State of Wisconsin furnishes a striking illustration of the correctness of the above remarks. In 1840 its population was only 30,000 souls. In 1850 it reached 304,000. At the present time the number of inhabitants cannot fall short of 450,000. The increase for the past *ten* years has been just about 400,000. As we were desirous of seeing what ten years had achieved in what, prior to that period, had been an unbroken and uncultivated waste, we passed over the principal line of railroad in the state, the Milwaukee and Mississippi, and devoted a day to a pretty critical study of the city of Milwaukee. In no part of the west did we see a better settled, a better cultivated, or a more productive country; and no road groaning under the press of a larger business in freights than the above named. Wisconsin is one of the most attractive, because it is one of the best *wooded* of the

prairie states. It presents a constant succession of small prairie, and wooded knolls, enabling nearly every farmer to locate in the vicinity of timber and good water, with prairies spread out before him of the easiest cultivation and almost inexhaustible fertility. With such advantages ten years have been sufficient for the creation of a great and prosperous state, filled with large and flourishing towns, and whose people present every evidence of wealth and extraordinary prosperity. Milwaukee, at the lowest estimate, contains thirty thousand inhabitants, and is one of the best built and most beautiful towns in the United States, with a very large and rapidly increasing commerce. Although the area of the State is very large, nearly the entire population of it is embraced in that portion of it south and east of the Wisconsin and Fox rivers, a territory of less than ten thousand square miles. We cite the above illustrations for the purpose of showing that in no part of the west can the construction of railroads outstrip the wants of the people or their ability to supply to them an abundant traffic.

We give these general remarks for the purpose of showing the ground work, or *rational* upon which our railway system rests. It is easy to point to the earnings of our roads in proof of their value and success: but all such, unless sustained by the results of their operations for years, may fail to command entire confidence, or remove all suspicion from the public mind, unless it be shown that they grow out of the very nature of the case. A fact stated by a railroad company may not establish a *principle*, because it may depend upon causes *accidental* in their character. But where such facts agree with the deductions naturally drawn from well established premises, their accuracy may be received without question. The extraordinary earnings of our railroads are no greater than what might have been anticipated by persons intimately acquainted with the relations they bear to the commercial and business wants of the country.

The railroad interest of the United States may be regarded as resting generally upon a sound basis. As an investment, our new roads cannot fail to pay a fair interest on their aggregate cost. When we come to compare different lines, there is, of course, every shade of excellence. As far as the purchase of their securities are concerned, we can hardly name an instance where parties will not receive all they contracted for. The amount of the *advance* expected, must depend upon the character of each particular work. With regard to *rival* works, we think less is to be feared from their influence than has been generally supposed. Western roads are costing much more than the original estimate, and the present stringency will postpone such as are of a *rival*, or competing character, till the above fact is fully understood. When parties see that they cannot construct a good road short of \$30,000 or \$40,000 per mile, which they supposed could be built for \$15,000 or \$20,000, their zeal will be very much abated. The demands of older companies who can offer the best securities for loans, will have the effect to crowd aside the claims of *new* or purely *rival* works. But the west will sustain a greater number of miles of railroad in proportion to its area, than any other part of the country.

Few railroads are projected or in progress in the former, that will not add more than they will subtract, from the business of the old roads.

We give these general remarks by way of introduction to others of a more pointed character; as the statement of a *principle* before making an application of *facts*. Our object is to convey a correct idea in reference to our railroads. As our views may be incorrect, we desire to state the *process* by which we arrived at them, assuring our readers that we intend to give them our *convictions*, however much mistaken we may be in our *logic*.

Nashville and Chattanooga Railroad.

V. K. Stevenson, Esq., in a recent communication addressed to the stockholders of this company, presents the following statement of the expenditures made thus far in the prosecution of their work. He observes that to the expenses there must be some addition for work done included in the account marked due from sundry persons and bills receivable, as well as a balance of 40,000 or 50,000 dollars to finish paying contractors just closing up, and to complete the outfit and station houses to be built under the resolutions of last May:

CONSTRUCTION.

Graduation, Culvert Masonry	1,087,483 89
Bridging	249,425 54
Laying Superstructure	122,480 17
Timber for do.....	147,471 14
Railroad Iron	710,783 26
Engineering	77,813 70
Gen'l expenses chargeable to construction..	50,000 00—2,445,457 70

EQUIPMENT.

Depot Buildings.....	74,877 88
Wood sheds and Water Stations	18,354 79
Division Houses	4,231 17
Construction of Machine Shop.....	1,798 37
Depot Lots.....	31,760 68
Cars.....	111,183 43
Tools.....	12,266 97
Locomotives	139,583 60—394,058 89

CONTINGENCIES.

General expenses not chargeable to construction.....	15,469 39
Interest on general account	170,951 83
Interest on No. 2 stock issued	2,598 89
Damage to M. & S. T. P. Co	23,262 50
Discount on N & M bonds	66,321 98—278,604 59

SUNDRIES.

Real Estate.....	10,289 31
Slaves.....	6,051 25
Bills Receivable.....	65,985 99
Due from sundry persons.....	56,483 94—128,760 49
	\$3,246,881 67

Maine.

ANDROSCOGGIN RAILROAD.—The Second Division of the Androscoggin Railroad, extending from Livermore Falls to Bartlett's Corner, is to be graded, the work to be finished by the first of October next. When the road is built, and in running order to that place, it will command almost the entire business from Franklin County. The road has been doing a much better business than was anticipated by its friends. The third division of the road, from Bartlett's Corner to Farmington, will be put under contract as soon as the second division is completed.—*Lewiston Journal*.

Greenville and Miami Railroad.

From an exhibit made Oct. 17th, 1853, we have the following statement of the business of the Greenville and Miami Railroad Company from 1st January to 1st September, 1853:

EARNINGS OF ROAD.

Receipts for transportation.....	\$32,922 65
Receipts for passenger service.....	88,640 23
Receipts for mail.....	2,333 00

Total.....\$73,895 88

DISBURSEMENTS.

For ordinary expenses, including repairs of machinery.....	\$24,233 98
For taxes and assessments.....	1,044 55
For payments to Dayton and Western Railroad for use of 14 miles of road from junction to Dayton.....	9,500 00
For interest on \$341,000 bonds not converted..	11,935 00—\$46,713 53

Balance

Ten per ct. dividend on \$184,000 stock 18,400 00

Surplus

\$8,782 85

There have been expended for additional machinery and ballasting of road, erection of engine-houses, wood and water stations, etc., the following amounts, out of the earnings of the road since Jan. 1st, 1853:

For ballasting of road.....	\$16,000
For engine-houses, stations, etc.....	5,352
For additional cars not provided for in former estimates	5,550—\$26,902 00

These expenditures, it will be seen, absorbed nearly the entire surplus of earnings for the period embraced in the above statement, beyond the actual expenses of running the road, and the payment of interest on bonded debt, and the agreed compensation to Dayton and Western railroad company for the use of fourteen miles of their track from the junction to Dayton, and it became necessary, therefore, to make the September dividend payable in the stock of the company, which was done.

EARNINGS FOR SEPTEMBER.

The earnings of the road for September are as follows:

Passenger service.....	\$8,268 21
Freight service.....	4,449 85
Mail service.....	333 30

Total

\$13,050 86

Amount of bonds not converted.....\$341,000

Amount of stock outstanding..... 184,000

Total

\$525,000

European and North American Railway.

We learn that Mr. Reed, Engineer of the E. & N. A. R. R. Co., has extended his location to Bangor, intersecting the Newport line 5 1/4 miles this side of the city, instead of 13 miles, as first proposed. An important saving in distance has been made, so that the line from Augusta to Bangor will be but 60 miles, making a saving of between 17 and 18 miles between Portland and Bangor, over the Newport & Waterville route.—*State of Maine*.

Canada.

The contract for building the Stanstead, Sherford & Chambley Railroad from Derby Line to Montreal, has been let to F. O. J. Smith, of Me., and his associates. The price is \$3,000,000, of which \$600,000 is to be paid in municipal and stock subscriptions, and the rest in the bonds of the road. It is hardly possible now to prevent the extension of the Passumpsic road to Derby Line.—*Vermont Journal*.

Virginia.

Orange and Alexandria Railroad.—The stockholders of the Orange and Alexandria railroad held their annual meeting on the 27th ult. J. S. Barbour, Jr., was elected President for the ensuing year, and Henry Dangerfield to fill a vacancy in the Directory. We extract from the Treasurer's report the following statement, showing the receipts and disbursements, both from the organization of the company and for the past fiscal year:

Receipts from commencement.....	\$1,824,954 36
Disbursements from commencement.....	1,778,488 00
Receipts for the past fiscal year.....	655,138 97
Expended during the past fiscal year.....	608,672 61

We learn from the Charlottesville Advocate that the meeting was attended by a number of gentlemen from the counties of Nelson, Amherst, and Albemarle, who felt an interest in the construction of the Lynchburg road from Charlottesville. They went down for the purpose of pledging the line to a subscription of \$300,000, which amount it is thought will secure the location of the road. They calculated upon a subscription of \$50,000 by the citizens of Albemarle, \$20,000 of which it was expected that Charlottesville would subscribe.

Illinois and Wisconsin Railroad.

At an adjourned meeting of the stockholders of the Illinois and Wisconsin railroad, held at their office in the city of Chicago, on Thursday, October 18th, 1853, at 4 o'clock, P. M., the following gentlemen were elected Directors for the ensuing year:

Wm. B. Ogden, Walter S. Gurnee, John P. Chapin, H. H. Magie, George W. Snow, J. C. Walter, George Steel, Charles V. Dyer, of Chicago.

Daniel S. Miller, J. J. Phelps, Philip Dater, of New York.

H. Hotchkiss, of New Haven, Conn.
Alfred Smith, of Hartford, "

Canada.

At a meeting of the stockholders of the Stanstead, Shefford and Chambly railroad, held at the St. Lawrence Hall, pursuant to notice the following stockholders were present:

Hon. Judge Rolland, Hon. L. T. Drummond, Hon. Wm. Badgley, P. Baxter, Hon. F. O. G. Smith, Portland; Onslow Stearns, President Northern Road, N. Y.; Dr. Poulin, M. P. P., John Gale, Benj. Lyman, John Ostell, Col. Bouthillier, A. Knight, Chas. Allen, George Adams, George Giddings, John Borker, Jr., Ralph Mewry, Edmund Longley, Stephen R. Andres, Samuel Andres, R. A. Ellis, J. G. G. Loranger, A. B. Foster, Alonzo Wood, D. Russ Wood, J. E. Alsopp, L. S. Huntington, Esqrs.

The stockholders proceeded to the election of directors, and upon nomination, the following gentlemen were elected:

Hon. Erastus Fairbanks, Vermont, L. T. Drummond, Wm. Workman, Benj. Lyman, D. Russ Wood, John Ostell, John Yule, S. Poulin, A. Knight.—*Montreal Herald*, Oct. 27.

Nashville and Chattanooga Railroad.

We understand, that the cars will run from Chattanooga to Nashville on the 1st of December, and that the Atlanta and La Grange Railroad will be opened to West Point in six weeks, so that certainly by 1st of January, the communication by railroad from this city to Nashville and to Montgomery, and from those points by steamboats to the Cincinnati and St. Louis railroad, and to Mobile and New Orleans, will be completed.—*Charleston Courier*.

Wheat on Michigan Southern and Northern Indiana Railroad.

There was carried over this road, during the months of August and September last, 641,787 bushels of wheat; and of that amount Monroe had 283,132 bushels, and Toledo had 351,788 bushels, and other places had 6,867 bushels.

Illinois.

Aurora Extension Railroad.—This road was to be completed to the Junction with the Illinois Central railroad, sixteen miles from LaSalle on the 29th ult. It is to be extended still farther and will soon reach Galesburgh, where it meets the Burlington and Peoria road, and of course, taps the rich trade of a large and fertile section of Iowa. The Military Tract through which it runs, is one of the finest agricultural regions in Illinois.

Illinois.

Massac and Sangamon Railroad.—The subscriptions to the stock of this company, made at Metropolis, Ill., up to Oct. 20th, were \$48,450, which was subscribed by thirty-seven individuals. In Franklin county upwards of twenty-one thousand dollars have been also subscribed.

Milwaukee Railroad Subscription.

The Daily Wisconsin of 18th ult. says, in relation to the Watertown Railroad loan:

The vote yesterday determines in favor of the loan, and the last loan that the city can make—as a law at the session of the Legislature limits the loaning of city credit to \$1,000,000. The respective loans are, \$234,000 to the Milwaukee and Mississippi railroad; \$200,000 to the Lake Shore; \$200,000 to the La Crosse; \$200,000 to the Fond du Lac; and \$200,000 to the Watertown road.—This fills the limit of \$1,000,000.

1300 Tons Yorkshire T rail, weighing 56 lbs. to the yard, and of a superior quality daily due and for sale by,
NAYLOR & CO.

KRUPP'S Celebrated Cast Steel Tire, MADE FROM A SOLID BAR WITHOUT WELDING.

CLASS V,
EXHIBITION OF THE INDUSTRY OF
ALL NATIONS, NEW YORK, 1853.

THE above Tire is submitted for competition and FINAL DESTRUCTION after the severest tests that the Judges can suggest to prove its tenacity, elasticity and TOUGHNESS.

The quality of the Tire is fully equal to that of the Cast Steel Axles and Springs, so extensively used on the continent of Europe.

Krupp's CELEBRATED CAST STEEL,

Which obtained the Council Medal at the London Exhibition in 1851.

Warranted unapproachable as to Quality and Size.
PLATERS and other Cast-Steel Rollers, of any dimensions not exceeding six feet long by eighteen inches diameter. Piston Rods and Shafts for Steam Engines, not exceeding 3000 lbs. in weight.
Railway and other Axles, Cranks, Springs and Tyres.
Cannon, Rifle and Gun Barrels.
Mint and other Rolling Mills.
Orders received by

THOMAS PROSSER & SON,
28 Platt street, New York.
Sole Agents for the United States.
Nov. 19, 1853.

Machinists' Tools.
A SUPERIOR CLASS.
DESIGNED particularly for Railroad work, manufactured by L. B. TING & CO., (late ALDRICH, TING & CO.),
October 7, 1853. LOWELL, MASS.

Valuable Works on Railroads, Railway Engineering, Steam Engines, &c.

LARDNER'S RAILWAY ECONOMY, 1 vol. \$2 00
THE STEAM ENGINE, STEAM NAVIGATION, ROADS AND RAILWAYS, Explained and Illustrated by Dr. LARDNER, 8th Edition, revised and improved..... 2 00
TREDGOLD ON THE STEAM ENGINE, 3 vols., 4 to., 1/2 calf..... 50 00
TREDGOLD'S PRACTICAL TREATISE ON RAILROADS AND CARRIAGES..... 1 50
PORTWINE ON THE STEAM ENGINE..... 50
BURGOYNE'S ART OF BLASTING ROCKS, QUARRYING, &c..... 31
TREATISE ON TUBULAR AND GIRDER BRIDGES..... 31
BAKER'S LAND AND ENGINEERING SURVEYING..... 62
BAKER'S RAILWAY ENGINEERING AND EARTHWORK..... 1 50
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SEWELL ON STEAM AND LOCOMOTION Vol. 1..... 31
HERBERTS ENGINEERS AND MECHANICS ENCYCLOPEDIA, 2 Vols..... 9 50
GARRS RAILWAY LOCOMOTION AND STEAM NAVIGATION..... 1 75
TRAUTWINE ON EXCAVATIONS AND EMBANKMENTS..... 1 00
Imported and for sale by JOHN WILEY, 167 Broadway, New York.

N. York and N. Haven R. R. NOTICE OF SUMMER ARRANGEMENTS,

Commencing Monday, May 9, 1853.

TRAINS FROM NEW YORK.	TRAINS TO NEW YORK.
7 A. M.—Accommodation to New Haven.	5.30 A. M.—Special, from Port Chester.
8 A. M.—Express for Boston, stopping at Stamford and Bridgeport.	5.00 A. M.—Commutation from New Haven.
9.10 A. M.—Special for Port Chester.	6.15 A. M.—Accommodation fm New Haven.
11.30 A. M.—Accommodation for New Haven.	8.15 A. M.—Accommodation fm New Haven.
3.00 P. M.—Express for New Haven, stopping at Stamford, Norwalk, and Bridgeport.	9.35 A. M.—Express from New Haven, Stopping at Bridgeport, Norwalk and Stamford.
4.00 P. M.—Accommodation for New Haven.	1.07 P. M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.
5.00 P. M.—Express for Boston, stopping at N. Haven.	4.00 P. M.—Special, from Port Chester.
6.35 P. M.—Commutation for N. Haven.	4.00 P. M.—Accommodation fm New Haven.
6.30 P. M.—Special for Port Chester.	9.30 P. M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.

GEORGE W. WHISTLER, Jr., Sup't.
New Haven, May, 1853.

Stuart, Serrell & Co.,

CIVIL ENGINEERS,
Rooms 22, 24, 26 & 27,
167 Broadway, New York.
CHARLES E. STUART, EDWARD W. SERRELL,
DANIEL MARSH, SAMUEL McELROY.

New Works on Civil Engineering.

THE Field Practice of laying out Circular Curves for Railroads.—By JOHN C. TRAUTWINE, Civil Engineer—2nd edition in pocket-book form.
A new and rapid method of Calculating the Cubic Contents of Excavations and Embankments, by the aid of Diagrams.—By John C. Trautwine, Civil Engineer—with 10 Copper Plates.
Price One Dollar each—postage on the Curves Three Cents—and on the Excavations and Embankments, Six Cents.
For sale by WILLIAM HAMILTON, Hall of the Franklin Institute, Philadelphia.
May 4, 1853.

ESTABLISHED 1796. McAllister & Brother,

OPTICIANS and Dealers in Mathematical Instruments, at the old established stand, 48 Chestnut street, Philadelphia, Pa. Mathematical Instruments separate and in cases, Protractors, Spacing Dividers, Drawing Pens, Ivory Scales, Tape Measures, Salometers, Spy Glasses, Microscopes, Spectacles, Hydrometers, Platina Points, Magic Lanterns, etc., etc.
Our Illustrated and priced Catalogue is furnished on application and sent by mail free of charge.
Nov. 19, 1853. 6m

\$1,000,000 LITTLE MIAMI RAILROAD COMPANY SIX PER CENT. FIRST MORTGAGE BONDS FOR SALE.

OFFICE OF WINSLOW, LANIER & Co.
No. 52 Wall-st., Oct. 6, 1853.

THE LITTLE MIAMI RAILROAD COMPANY offer for sale one million of their **SIX PER CENT. BONDS**, with coupons. Interest and principal payable in New York, the former half-yearly, 1st of November and 1st of May. They are in sums of \$1,000 each, payable the 1st day of May, 1858.

These Bonds are issued under the express authority of the Legislature of the State of Ohio; and are a part of the \$1,500,000 Loan authorized to be issued by a vote of the stockholders, for the purpose of raising means to make a double track; the greatly increased and increasing business of the road makes this absolutely necessary.

The Little Miami Railroad is eighty-four miles long, commencing at the City of Cincinnati and terminating at Springfield; is now in complete running order; has cost, including equipments, stations, station-houses, &c., up to this date \$2,708,109 19.

This Company hold stock in the Columbus and Xenia Railroad Company to the amount of \$386,000, which now commands a premium of 20 per cent. Also, in the Hillsborough Road the amount of \$11,716.

The receipts of the Road have been as follows:

For the year ending Dec. 1, 1844.....	\$18,623 36
For the year ending Dec. 1, 1845.....	46,827 58
For the year ending Dec. 1, 1846.....	116,052 02
For the year ending Dec. 1, 1847.....	221,139 52
For the year ending Dec. 1, 1848.....	280,085 78
For the year ending Dec. 1, 1849.....	321,398 82
For the year ending Dec. 1, 1850.....	405,697 24
For the year ending Dec. 1, 1851.....	487,845 89
For the year ending Dec. 1, 1852.....	526,746 35
The receipts from Dec. 1, 1852, to Sept. 1, 1853, 10 months were.....	544,625 59
For the same period year before.....	411,797 06

Increase in 10 months.....\$132,823 53

The position of this road, being the natural, shortest and most usually travelled route from Cincinnati and the vast country south and west of it, to the northern cities, must ever make it one of the most important and profitable lines in the country.

An inspection of a map will show its connections to be many and important. This road operates the Columbus and Xenia Road, and runs in connection with the Cleveland and Columbus Road; in fact they are now run as one line greatly to the advantage of all.

Regular annual 10 per cent. dividends have been declared since December, 1847, with an extra dividend of 5 per cent. in 1852. In 1852 two cash dividends of 5 per cent. were made.

The present surplus and reserve fund amounts to.....	\$98,546 10
The mortgage covers the entire line of road, costing to date...	2,708,108 19
To be expended on double track, &c.	1,500,000 00

Value of security.....\$4,208,109 19

The security for the payment of these Bonds is one of the most ample character, being a first and only mortgage or deed of trust (excepting one of \$100,000 to the City of Cincinnati) on the Company's Road, Stations, Franchises, net income, &c., to J. F. D. LANIER, Esq., of this city, in trust for the bondholders, with ample power to take possession of the Road, its real and personal estate, franchises, &c., and to sell the same to the highest bidder for cash, if default be made in payment of interest or principal. The mortgage is for \$1,500,000, and cannot be increased.

The Stock owned by the Road in the Columbus and Xenia and Hillsborough Railways will much more than pay off the \$100,000 prior lien to the

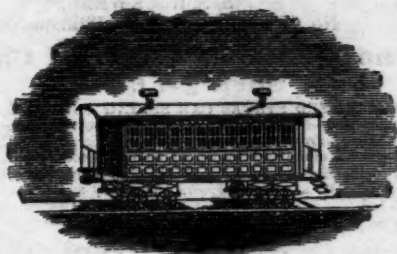
City of Cincinnati, and all other debts of the Company, excepting this loan of \$1,500,000.

These Bonds are offered at private sale by the undersigned, Agents of the Company.

Printed statements of the affairs of the Company, and any further information relative to the securities, will be given by

WINSLOW, LANIER & CO.,
No. 52 Wall-st.

Elmira Car Manufactory.



THE Undersigned is prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

WM. E. RUTTER.

Elmira, N. Y., June 1, 1853.

Oxford Furnace, N. J.

ESTABLISHED A. D. 1743.

THE Subscriber manufactures and keeps constantly on hand for sale, every variety and size of Railroad Wheels made from the celebrated Oxford Iron. All orders addressed to CHAS. SCRANTON, Oxford Furnace P. O., will be attended to promptly.
Sept. 11, 1852. 1r

Railroad Car Works.

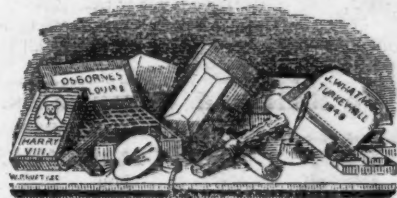
THE Undersigned are prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

F. HUNGERFORD & CO.

Maysville, Ky., Sept. 29, 1853.

Hufty's

Engineers, Architects and Draftsmen's
STATIONERY EMPORIUM.



WHATMAN'S Turkey Mill Drawing paper, Tracing paper, Plan and Profile, Protractors, Drawing Pins, Faber's, Jackson's and other makers' Pencils; Field, Level, and Memorandum Books of various patterns; Mathematical Instruments, Tape-lines, Mouth Glue, Cross Section paper, Triangles, Sabel Brushes, Gum Bands, Maiden Gum, Red Tape, Ink, Inkstands and Sand, Water Colors, Palettes, Patent Binders for letters, Portfolios, etc., together with a general assortment of Stationery and Blank Books. All goods packed with care, and forwarded to any part of the United States.

JOSEPH HUFTY,
Successor to H. L. Lipman,
139 Chestnut st., Philadelphia

May 15, 1851.

To Railroad Companies, Machinists, Car Manufacturers, etc., etc.

CHARLES T. GILBERT,
NO. 80 BROAD ST., NEW YORK,

Is prepared to contract for furnishing at manufacturer's prices—

Railroad Iron,
Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
Chairs and Spikes.

Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention.

Buffalo Car Works.

TOWNSEND & COIT, Proprietors.

WE are now erecting an extensive Establishment for the manufacture of Railroad Cars, which will be furnished with all the conveniences known to the business, and ready for operation by the 1st day of June next, at which time we will be ready to execute orders for Baggage, Box, Platform and Cattle Cars, of the most approved style and finish. Meantime we are prepared to make contracts for work to be furnished during the summer and fall.

TOWNSEND & COIT, Buffalo.

February 23, 1853.

A. N. GRAY, Cleveland, O.,

RECEIVER AND FORWARDER of Railroad Iron, Chairs and Spikes

Also, Cars, Locomotives, and all kinds of Machinery for Railroad purposes.

Office next door to the Custom House, Main st.
January 12, 1853.

SIXTY MILES DISTANCE SAVED!—ONLY THIRTY-SIX AND A HALF HOURS TO CHICAGO.

MICHIGAN SOUTHERN RAILROAD LINE, carrying the Great Western U. S. Through Mail—FOR CHICAGO AND ST. LOUIS, MILWAUKEE, RACINE, KENOSHA, and all Ports on Lake Michigan.—Through from Buffalo to Monroe IN FOURTEEN HOURS WITHOUT LANDING.

The following magnificent and unequalled steamers from the line between Buffalo and Monroe:

EMPIRE STATE, J. WILSON, Commander, leaves Buffalo Mondays and Thursdays.

SOUTHERN MICHIGAN, A. D. PERKINS, Commander, leaves Buffalo Tuesdays and Fridays.

NORTHERN INDIANA, I. T. PHEATT, Commander, leaves Buffalo Wednesdays and Saturdays.

One of the above splendid steamers will leave the Michigan Southern Railroad Line Dock, at 9 o'clock, P. M. every day, (except Sundays) and run direct through to Monroe without landing, in 14 hours, where the Lightning Express Train will be in waiting to take passengers direct to Chicago in 8 hours; arriving next evening after leaving Buffalo.

THE LAKE SHORE RAILROAD.

runs in connection with this line, forming the only continuous line of Railroad to Chicago and the Illinois River.

For Through Tickets, by New-York and Erie and Buffalo and New-York City Railroad via Buffalo, or by the People's Line of Steamboats, Hudson River Railroad via Albany and Buffalo, apply to

JOHN F. PORTER, Agent,
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MONTREAL & NEW YORK AND Plattsburgh and Montreal RAILROADS.

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Passenger Trains leave Montreal for Plattsburgh at 6 30 a.m. and 5 p.m., arrive at 8 a.m. and 7 30 p.m.

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Trains connect at Montreal with Steamers for Quebec, and the St. Lawrence and Atlantic Railroad for Sherbrooke and intermediate stations.

Trains connect at Moers Junction with Northern (Ogdensburg) Railroad for Ogdensburg and Lake Ontario Steamers for Lewiston, Niagara Falls and Upper Canada, and all ports on the Western Lakes.

Trains connect at Plattsburgh by Steamer to Burlington with Rutland and Burlington Railroad and connecting lines for Troy, Albany, New York and Boston, and all intermediate stations. Also with steamers for Whitehall to the Saratoga and Washington Railroad, and connecting lines of road to Troy, Albany and New York.

Passengers will find this route unequalled for comfort and dispatch, and attended with least fatigue and delay than any other. It possesses moreover the advantage of a short Ferriage of only fifteen minutes across the River St. Lawrence at Caughnawaga, which has never been known to freeze, and can be confidently relied upon at all seasons of the year.

Freight Trains run daily each way.

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BAGGAGE checked through.

H. W. NELSON, Superintendent.

New York and Erie R. R.

PASSENGER TRAINS leave Pier foot of Duane street, as follows, viz:—

DAY EXPRESS, at 6 a. m. for Dunkirk and Buffalo.

MAIL, at 8 1/2 a. m. for Dunkirk and Buffalo, and all intermediate stations. Passengers by this train will remain over night at any station between Binghamton and Corning, and proceed the next morning.

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WAY, at 3 1/2 p. m. for Delaware and all intermediate stations.

NIGHT EXPRESS, at 6 p. m. for Dunkirk and Buffalo.

EMIGRANT, at 6 p. m. for Dunkirk and all intermediate stations.

On Sundays only one Express Train—at 5 p. m.

The Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Chicago, etc., and at Buffalo with first class splendid steamers for Cleveland, Sandusky, Toledo, Detroit and Chicago.

CHAS. MINOT, Supt.

HENRY TANNER vs. **the Hudson River Railroad Company.** Circuit Court of the United States for the Northern District of New York.

THIS is a suit brought by the plaintiff for an alleged infringement of letters patent granted to him as assignee of the inventors, L. H. THOMPSON and A. G. BACHELDER: 'for an improved Railroad Brake', by the use on the said road of brakes made on plans, alleged to have been invented by NEHEMIAH HODGE and also by F. A. STEPHENS and purchased by the said defendants, from the said Hodge & Stephens and also for use of the plan as patented to said Tanner.

The suit was noticed for trial at the October term of 1853, and put over the term by the motion of Defendant's Counsel by paying the costs of the term.

And thereafter the Defendant's Counsel made overtures for a settlement which resulted in the defendant's acknowledging the validity of plaintiff's patent, the infringement of the said patent by the use of double acting brakes on the plan of the said patents, and the Company paying to the said plaintiff for the right to use the said invention and for the withdrawal of said suit the sum of ONE THOUSAND DOLLARS and costs.

Having read the above I do certify to the correctness of the statements therein contained.

October 25th, 1853.

THOMAS M. NORTH,
Secret'y and Attorney of the
Hudson River R. R. Co.

New York, October 26th, 1853.

This is to certify that I was of Counsel for the plaintiff in the above entitled cause, that the suit was brought for the recovery of damages from the Hudson River Railroad Company for the use on their cars of brakes, made on the plans described in the patents granted to Charles B. Turner on the 14th, of Nov. 1848, to Nehemiah Hodge on the 2d, of October 1849, and to F. A. Stephens on the 25th, of November 1851. That in preparing for the trial of the above entitled cause I made a careful examination of all the facts, given in the notice of defence and became satisfied that Thompson and Bachelder, from whom Tanner derived title, were the original and first inventors of the Double acting Brake covered by the plaintiff's patent and that the Brakes of Turner, of Hodge, and of Stephens are infringements of the said Tanner's patent.

CHS. M. KELLER.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by **POWERS & WRIGHTMAN**, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

Drawing.

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REFERENCES. Messrs. Miller and Freund, Ligneous Marble Works, corner of Franklin and Center streets, New York. Also H. V. Poor, Esq., Editor Railroad Journal, and Zerah Colburn, Assistant do.

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Warranted of superior quality.
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Railroad Iron.

2,000 TONS FIRST CLASS WELSH RAILWAY IRON, to be made to any ordinary T pattern required by the buyers, and for shipment from Newport, Wales, in December, January, and March next, apply to the undersigned, for many years connected with the largest house in the trade.

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2 Ingram Court, Fenchurch street London.

A Valuable Farm in Illinois for Sale.

SITUATED in the Village of Seward's Point in Montgomery County 7½ miles North of Hillsborough, about 36 South of Springfield the Capital of the State, about 18 West of the Illinois Great Central Railroad, about 4 or 5 North of the Alton & Terre Haute Railroad and about 18 miles West of the intersection of the two, containing 80 acres of rich prairie land.

Apply by letter or in person to

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India-Rubber Railroad Car Springs, etc.

THE UNITED STATES CAR SPRING COMPANY, having completed their new Factory, are manufacturing and furnishing to Railroad Companies, and Car Builders, **RUBBER SPRINGS** of the best quality, on the most favorable terms.

Also, McMullen's superior **WHITE HOSE**, not only for Railroads, but all other purposes, and of any size or thickness required.

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The Hamilton Car Company,

ARE prepared to Contract for the Manufacture to order Rail Road Cars of every description, such as Passenger, Baggage, Freight, Dumping and Hand Cars, &c. &c.

Having ample facilities for Manufacturing at the lowest rates, and being supplied with Eastern Mechanics in every department under the Superintendence of H. P. Lanckton, who has had charge of T. W. Wason's well known establishment at Springfield Mass., for the last Six years, we can guarantee ours to be equal in style and quality to any manufactured.

Car Manufacturers and Rail Road Companies Supplied with Car wheels from the most approved patterns at the lowest prices. Castings of all kinds for Cars, Rail Road Bridges, &c. made to order at short notice.

Orders Respectfully Solicited.

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THE Subscribers would invite the attention of the public to the above celebrated Patent Ventilator. This Ventilator is the best one now known of, for giving a pure air in rooms, and ejecting all foul air. It has been adopted by all the principal Railroad Companies and Car Factories, and is extensively used for private dwellings, and for the cure of smoky Chimneys cannot be excelled. Manufactured and for sale by

BAKER & WILLIAMS,
No. 406 Market st., Girard Row,
Sole Agents for Pennsylvania.

CERTIFICATES.

Engineer Department P. R. R., Altoona, Feb. 8, 1853.
This is to certify that Messrs. BAKER & WILLIAMS, of 406 Market st., Philadelphia, have furnished a large number of Collins' Patent Galvanized Iron Ventilators for the P. R. R. Co., and that they have given every satisfaction, acting fully as represented. I consider them as a necessary appendage to an Engine House. We have them in use three inches, and two feet diameter, acting equally well. So well satisfied am I of their usefulness, that the Engine Houses we are about building will be supplied with them at every point where a draft is necessary to free building of smoke.

Principal Assistant Engineer P. R. R. Co.

Engineer Depart. P. R. R. Co., Pittsburgh, May 12, 1853.

Messrs. BAKER & WILLIAMS,
Dear Sirs—The 25 Collins' Patent Ventilators furnished by you for the Engine House at this place, have been in use several months and their merits have been fully tested and have given most perfect satisfaction; being constructed on true principles of Ventilation, and the workmanship is of a substantial and superior character. Yours truly,
OLIVER W. BARNES,
Principal Assistant Engineer P. R. R. Co.

To Contractors.

CHIEF ENGINEER'S OFFICE, N. & P. R. R. Co.,
Norfolk, Oct. 13, 1853.

SEALED PROPOSALS will be received by the undersigned at this office from the 3d, until the 15th day of December next, at noon, for the graduation and masonry of 62 miles of the Norfolk & Petersburg railroad between the city of Norfolk and Warwick Swamp in the county of Sussex.

The line will be divided into sections of about 4 miles, and bids will be received for one or more of said sections.

Maps and profiles of the line will be ready for inspection and specifications with forms of proposals may be had of the undersigned on and after the first day of December.

Payments will be made in current money during the progress of the work in proportion of four-fifths of the amount due.

As soon as practicable after the examination of the proposals, those to whom the work will be allotted will be duly notified, and if deemed necessary required to give bond with satisfactory security for an amount not exceeding one-tenth of the amount of work to be done.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract, or reject all, if none are satisfactory.

The line is easy of access, the country through which it passes is of mild climate and abundant in supplies. Postage on all communications must be prepaid.

W. MAHONE,
Chief Engineer.

Small Rails.

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CHAS. E. SMITH,
THOS. T. TASKER,
HENRY MORRIS,
WISTAR MORRIS.

To Contractors.



PROPOSALS will be received till sunset Nov. 21st for the Graduation, Masonry, and Superstructure of the CLINTON LINE EXTENSION RAILROAD from Hudson to its intersection with the Mad River Railroad, a distance of about one hundred miles. The route occupies a perfectly healthy country, thickly inhabited, and accessible at all points.

Also, at the same time, for the construction of the portion of the Clinton Line Railroad not under contract extending to the Ohio and Pennsylvania State Line.

Specifications, Maps and Profiles will be ready for examination ten days before the letting at the Engineer's office in Hudson.

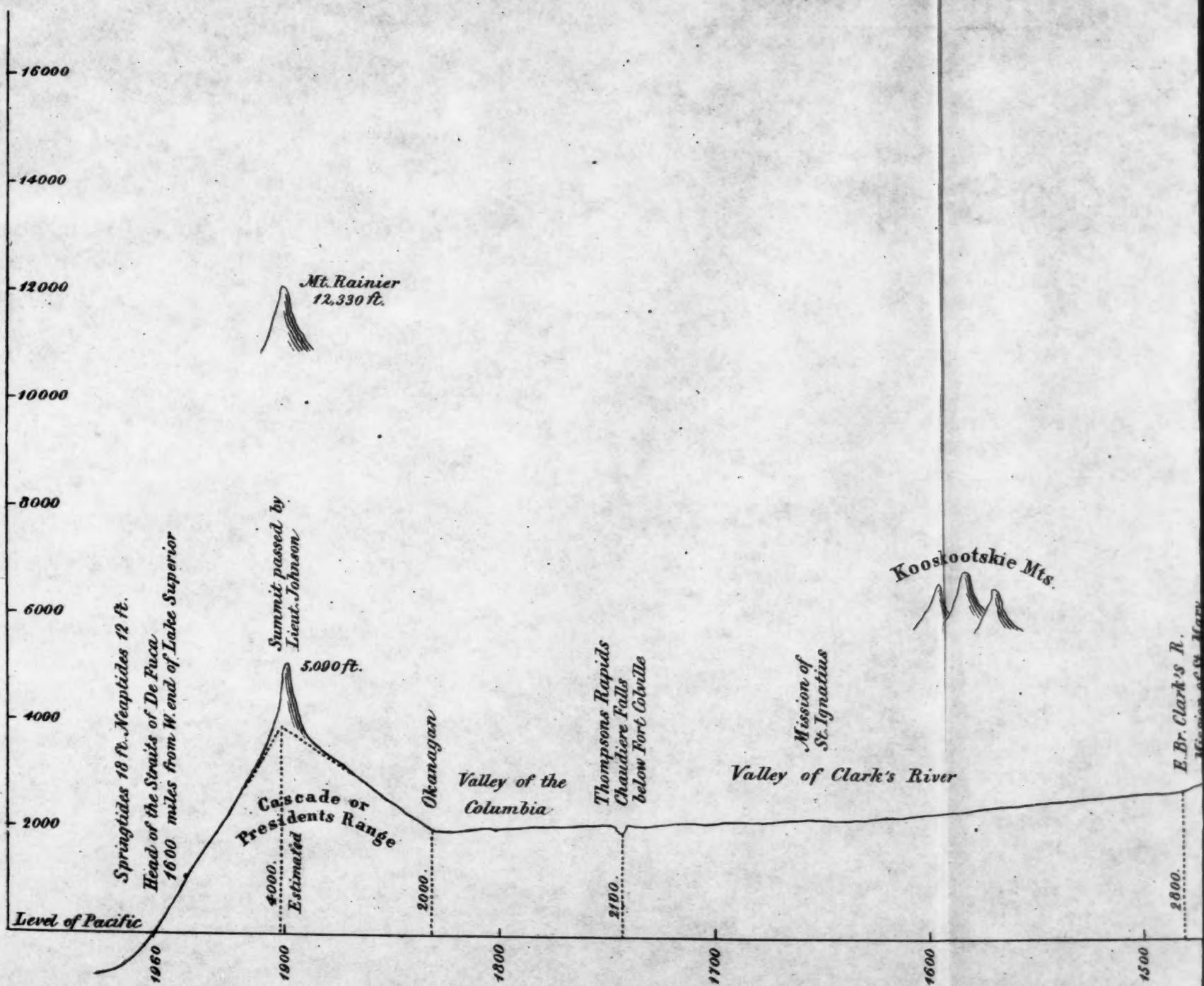
H. N. DAY, President.
W. B. BRINSMADE, Chief Eng'r.
Hudson, Ohio, Oct. 10th, 1853.

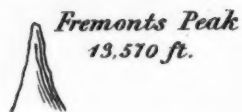
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The undersigned have added to the PRINTING ESTABLISHMENT of the "RAILROAD JOURNAL," an extensive OFFICE for **BOOK AND JOB PRINTING**, which they are now prepared to execute in the BEST manner, and with DISPATCH. They respectfully solicit from RAILROAD COMPANIES, orders for the PRINTING of Exhibits Time-tables, Circulars, Tickets, &c., &c.

J. H. SCHULTZ & CO.

New York April 9, 1853.





Fremonts Peak
13,570 ft.

Rocky Mts.



Bear Mt.
8,230 ft.



South Pass
7,490 ft.

Lewis Pass



Tootskie Mts.

E. Br. Clark's R.
Mission of St. Mary

Werners Cr.

Seamans Cr.

N. Fork Coholachishit

5000 to 6000 Washington Ter.
Estimated Missouri line

Great Falls of the Missouri

Marias R.

Thompsons R.

Op. Muscleshell R.

Brattons R.

Valley

Milk R.

of

Porcupine R.

Op. Yellowstone R.

the

1500

1400

1300

1200

1100

Ocean

Level

2040

2800

3250

2850

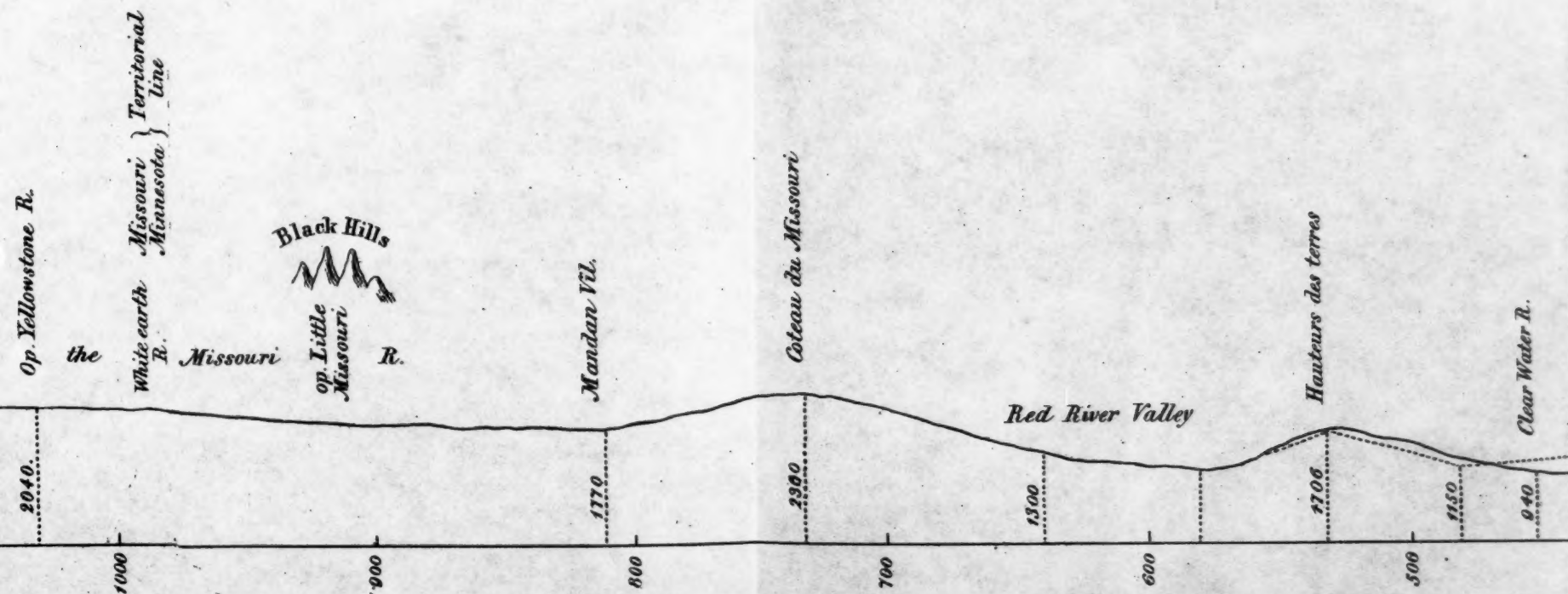
PROFILE

Shewing the general features of the Route of the proposed
Railroad to the Pacific,
from **Chicago, Ill.**, to the Straits of **Juan De Fuca** via the
Valley of the Upper Missouri;

and its connection with Lake Superior.

Aug^o 1853.

by E. F. Johnson, C.E.



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